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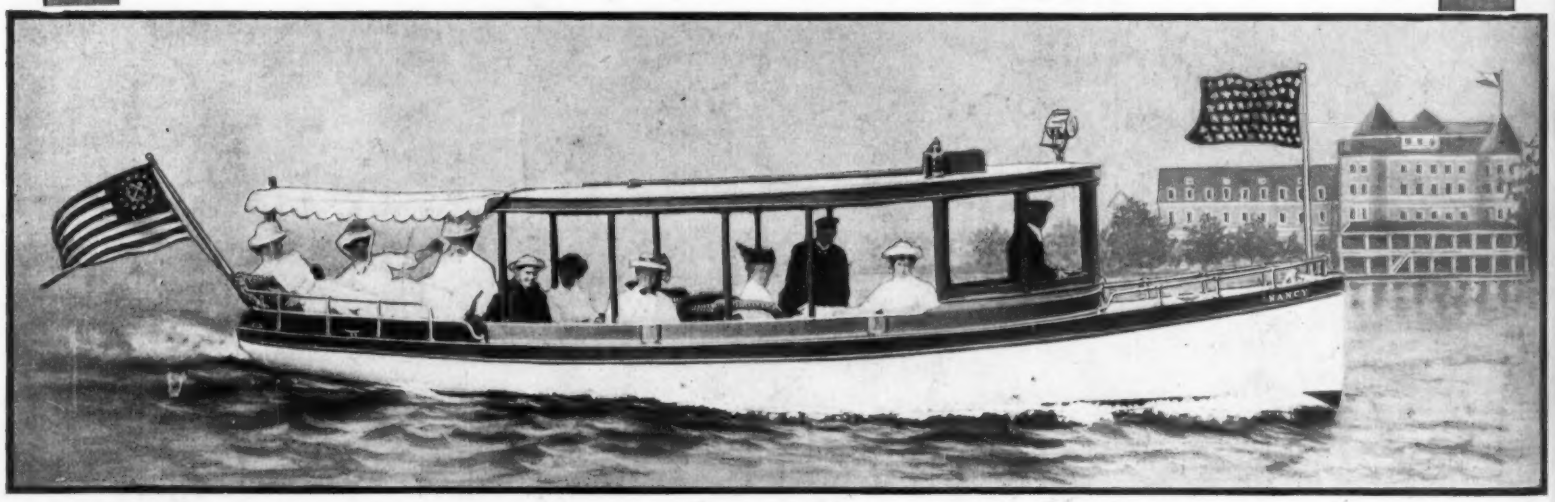

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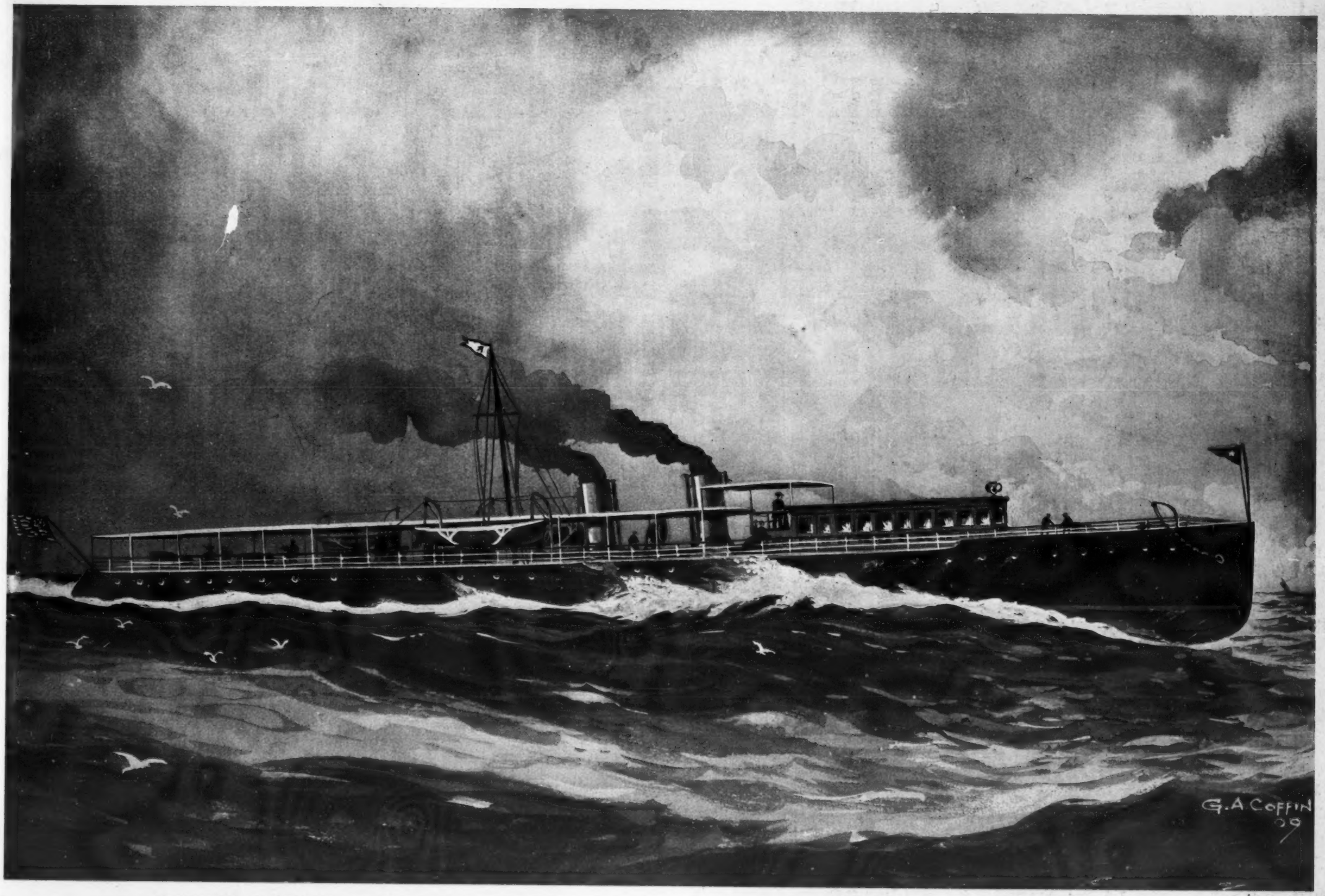
Published Monthly. 25 cents per copy. $3.00 per year. For Foreign Postage add $1.00. For Canadian postage add 50c. Copyright, 1909, by Yachting Publising Company. Entered as Second Class Mail Matter at the Post Office, New York, N. Y.

YACHTING PUBLISHING COMPANY, 20 Vesey Street, NEW YORK, N. Y.



WINCHESTER, A NEW 170-FOOT STEAM YACHT, WITH A SPEED OF 30 MILES AN HOUR. THIS IS THE FIRST YACHT WITH TURBINE ENGINES TO USE CRUDE OIL FOR FUEL.

YACHTING

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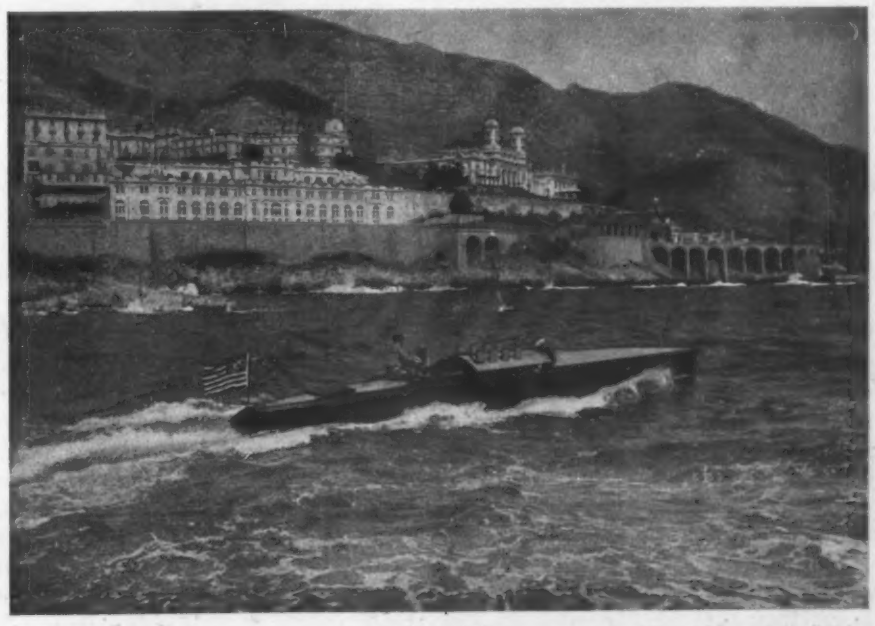
PANHARD-LEVASSOR, THE WINNER IN 1908. WITH NEW ENGINES SHE COULD NOT HOLD WOLSELEY-SIDDELEY THIS YEAR.

The Motor Boat Races at Monaco

By S. DeB. HERBERT

AT the foot of the Southern Alps where they drop off into the blue sea the gay little city of Monaco, in the principality of that name, snuggles around the small basin in the cliffs that can hardly be dignified by the name of harbor, and looks out across the fickle Mediterranean towards the distant African coast. Here, every spring, is held the greatest international motor boat speed meet of the world, and here, between April 4 and 11 of this year, was witnessed a series of races which was the most successful and sensational ever seen there, and resulted in a number of records for that course being smashed so decisively as to make one wonder if the limit of speed on the water is yet within the range of a binocular.

With a list of over 100 entries, which included every conceivable type of speed craft, from the hydroplane to the flimsy, knife-like creation, it remained for the sanely-designed boat of clean, easy lines and fair displacement to carry off the chief honors and attain the highest speed. As so often happens, the freak creations were weighed in the balance of average conditions and found wanting, and the accepted type of hull, which has come down through the years with the modifications of experience and science, again demonstrated its superiority.

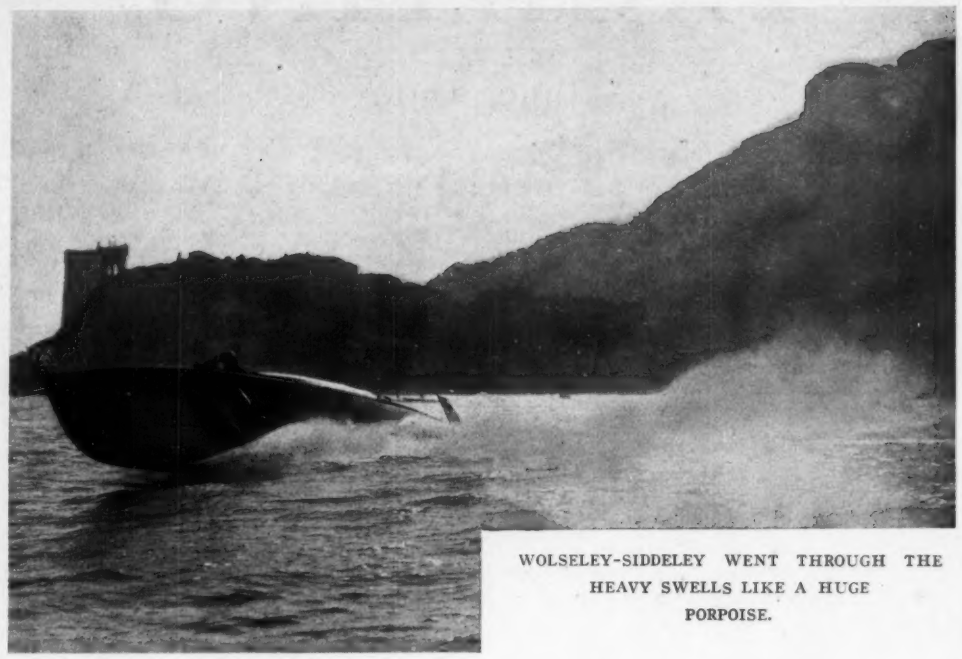


THE CLEAN-LINED DIXIE COULD NOT BE PUSHED HARD IN THE ROUGH WATER.

The course at Monaco is in the open, and is laid out in the form of an ellipse, one side of which is close under the abrupt cliffs, from which the spectators can look down on the struggles, while the longer sides are parallel to the shore. The Mediterranean is noted for the heavy swell which rolls in and breaks at the foot of the cliffs, and the course, being for the most part parallel to the shore, forces the boats to take the nasty heave abeam, which was the cause of many of them coming to grief. The hydroplanes and freaks were the worst sufferers under these conditions, and while neither of the American entries can in any way be placed in these classes, it is indisputable that they suffered to a large extent from the long heave and swell. Standard, a practically untried boat, was so cranky that she did not actually start in a single event in which she was entered; and in some of her few trial spins before the first race she was frequently seen to roll her gunwale under—and this when she was not fully opened up. The motor proved extremely powerful—so much so, in fact, that the men

running it did not dare to let it out enough to drive her at top speed. She was finally hauled out on the ways for some readjustment of her weights before the 100-kilometer international race.

Dixie also suffered from the sea, and at no time could she be driven to her limit, as she was on several occasions last summer. Long, narrow, and lightly built for the conditions she had to face, it would have been the height of folly to have forced her. Had she done her best, it is doubtful if she would have held the British Wolseley-Siddeley, with her two wonderful records. Mr. Crane, her designer, had expected to have Panhard-Levassor (the winner of last year's meet, but with more powerful engines installed) to beat; and in the 100-kilometer, with a smooth sea, Dixie had the French boat behind her up to the thirteenth round, when she was forced to withdraw on account of a broken circulating pump.



WOLSELEY-SIDDELEY WENT THROUGH THE HEAVY SWELLS LIKE A HUGE PORPOISE.

At the exposition, before the races, Dixie attracted unusual attention, with her fine, sharp lines and beautiful, light construction. Beside the powerful Wolseley-Siddeley II she looked small, not only on account of the former's greater size and 6 feet of beam, but also by reason of the shape of the hulls. The British boat has a flaring bow, a somewhat flat floor, with the greatest beam at the waterline somewhat aft of amidships, and a tumblehome from there to the deck. Her broad stern with its twin screws adds to her appearence of power, while her two engines develop from 600 to 650 horsepower. It is a good thing for us that she is too large to compete for the Harmsworth trophy in August, or we would have some uneasy days in store for us. It is reported, however, that a smaller sister is being built to take the cup home with her, so there may yet be plenty of trouble awaiting us.

Though failing in the rough water to demonstrate their superiority, the hydroplanes were still much in evidence at the meet. One of the largest of these was Alla-Va, which was expected to do wonders; but she unfortunately hit a sea with such force as to crack her planking and engine bearings, and was forced to beat an ignominious retreat.

The interest in the racing naturally centered in the events in which Wolseley-Siddeley, Panhard and the American boats were entered. The first of these was the 50-kilometer (31.05 miles), and was started on the afternoon of the 5th, with the cliffs and terraces overlooking the sea lined with an eager crowd watching the struggle. Some excitement was occasioned among the spectators by the sinking of the German entry, the 50-foot Prinz Heinrich, shortly before the race. This boat was built for the event in seventeen days, and it was evident from her appearance that she was a "hurry-up" job.

But four boats lined up for the start, the French Panhard and Alla-Va, the British Wolseley and the Dixie. The method of starting is different from that seen in this country, the judges taking their places on a stand built on a promontory overlooking the sea, from which they can look down on the boats. The starting signal consists of a preparatory gun five minutes before the race is started, and a black ball dropped each minute thereafter, the last one exploding a bomb for the starting signal. Alla-Va, the big hydro, was the first across the line, some hundred yards ahead of Panhard, with the British boat third and Dixie last, some fourth of a mile behind, owing to her having been lying with engines stopped while the other boats were under way at the gun-fire. Once opened up, however, the latter tore after the others for a half mile or so at something like her old speed, and then her crew had to shut her down, as she rolled and yawed dangerously in the heavy swell that was running, though the surface of the sea was not so bad. The hydro felt it, too, and sneaked back to harbor after completing a round.

THE DUKE OF WESTMINSTER (IN THE CAP) AND MR. ROBINS, THE PILOT OF WOLSELEY-SIDDELEY.
THE FLAT FLOOR AND GOOD BEAM OF THE BRITISH BOAT HELPED HER IN THE ROUGH WATER.

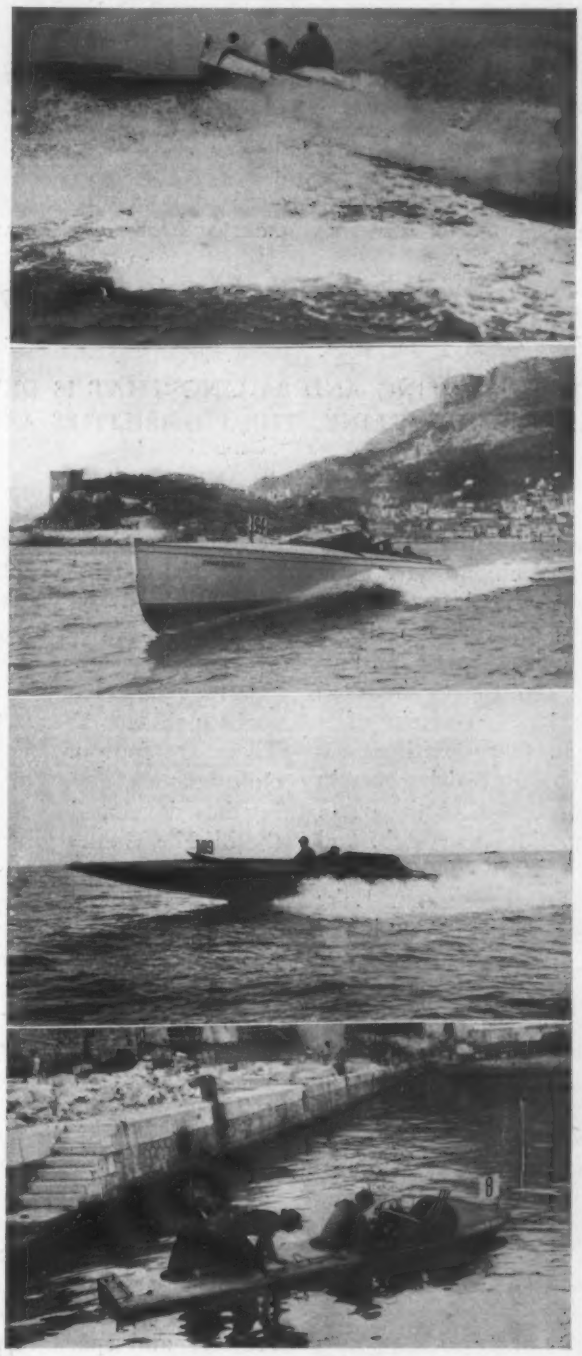
Wolseley and Panhard were making good weather of it, however, the former slightly the better, perhaps, for she overhauled the French boat on the first round and took the turns well, rolling out, but recovering herself quickly. Both boats kept neck and neck for awhile, but the British craft finally drew away from her antagonist. She seemed to go through the water easier and with less fuss, leaving a clean wake; whereas Panhard traveled with an acre of foam hanging to her flanks. Wolseley was especially good at shouldering the swells to one side, going over and through them like a porpoise and steering a true, steady course. It was a great race, and the ovation that the winner, although a foreigner, received as she tore over the line testified to the popularity of the victor. Her time was 49

minutes and 4-5 of a second—an average of 38.1 statute miles per hour. Panhard was 14 seconds behind her, while Dixie, which had kept on under reduced speed, came in some 39 minutes later. It was a great disappointment to the Americans present.

The next race in which these boats came together was the 100-kilometer for the Grand Prix International, on Friday, the 9th. Standard was out again the day before, having been improved somewhat as to stability, so that her engines could be opened up, and the crowd was eagerly awaiting her performance. It was not to be, however, for on the morning of the race, during a trial spin, she cracked a cylinder and could not start.

Seven boats appeared at the line and five nations were represented—France, Great Britain, Germany, Italy and America. The boats were Panhard, Ricochet XIII (a hydroplane), Fauber-Labor - Motobloc, Wolseley - Siddeley, Liselotte-Tellier, a German boat, Dixie, and the Italian Nibbio. Wolseley got away in the lead, followed closely this time by Dixie, with Panhard third. At the end of the first round the British boat was nearly a quarter of a mile ahead of Panhard, with Dixie further astern. These positions they held until the fifth round, when the American boat passed Panhard on the turn, the water conditions not bothering her, as on the first day. It was soon apparent that the race, barring accidents, was Wolseley's, and the interest centered on the great fight for second place going on between Dixie and Panhard.

At the close of the thirteenth round, when some two minutes ahead of Panhard and apparently running well, Dixie headed for the harbor and abandoned the race, having broken a water-circulating pump. On the next round Panhard stopped suddenly, a connecting-rod having broken and gone through her bottom. She was towed into the harbor, where she sank before they could dock her. These events placed the German Liselotte in the lead for second place, the other contestants being strung out or having abandoned the race, and she hung on in that position to the end. Running with clock-like regularity, and apparently ready to go over the same distance again, Wolseley finished in 1:55:3-5—a wonderful performance for the distance, considering that there were sixteen rounds to the course.



LISELOTTE. SHE FINISHED SECOND IN THE GRAND PRIX INTERNATIONAL.
CHANTECLER, ONE OF THE LARGE CRUISER RACERS.
DELAHAYE-NAUTILUS IX, A FAST HYDROPLANE.
ONE OF THE FREAKS, CELESTINE IST ANZANI.

This ended the racing as far as our entries were concerned, as Standard was being made ready for shipment when the mile-and-kilometer event was started on the last day, and Dixie could not be repaired in time for this short race, which was held on Sunday, the 11th, the prize being a cup valued at 10,000 francs given by the Prince of Monaco. After her previous successes Wolseley was naturally regarded as favorite in the racing class. The British boat had a walk-over in her heat, and in the final had to meet Delahaye-Nautilus XIII and Duc, two hydroplanes. These two led from the line, Wolseley-Siddeley being about thirty yards behind. It was a most exciting race, and apparently the two hydroplanes made a dead heat for first place, though the official time gave Duc the victory by a fifth of a second. The time for the mile and kilometer was 2 minutes 45 2-5 seconds. At the close of the racing the Prince of Monaco held a reception on board of his yacht, and presented Mr. N. M. Robins with the Cross of the Order of St. Charles, in recognition of his successful handling of the British champion.

Of the other events of the meet the one that attracted the most attention was that for racing cruisers for the Championship of the Sea. This race was 200 kilometers in length (124.2 miles), and was won by the French Chantecler, a large 18-metre boat, in the excellent time of 4:45:58, or an average of 26.08 miles per hour. This boat was one of the most consistent performers, and also finished first in the 50 kilos for cruisers. In the elimination race of 100 kilometers between French boats to decide on the contestants in the Grand Prix International there were eleven starters, Panhard-Levassor getting away first and never being headed, winning in 1:47:24, an average of 34.78 miles. The other races, though often close and exciting, were not of great international interest. It was apparent in most of them that a mistake had been made in starting hydroplanes against legitimate boats, and it would be better in future to confine the former to a class by themselves.

The interest in some of the races was marred by the large number of entrants that failed to appear at the starting line, or, starting, that failed to finish the race. This was due, in a large measure, to the roughness of the water, and also to the unreliability of the high-speed racing motor under the trying conditions of a strenuous race. In many cases neither hulls nor engines were designed to meet the conditions that prevailed. In a number of events the classification was such that little 18-foot racers, or what they term racing cruisers, were started in races against boats 40 feet and over in length, with the almost inevitable result.

No excuses are to be made for the failure of our entries. Dixie could not stand the conditions, and, barring that, she was called upon to race against boats of twice her size and power—one of the events being unlimited as to size. This was a mistake which we are not likely to repeat if we are represented there another year. Standard, with an engine that was not designed and built for the hull, would, undoubtedly, have been a failure whether she raced at Monaco or in this country. Her engine has already been dismounted, and it is doubtful if she will ever appear again as she was at Monaco.

AT THE NORTHERN POINT OF THE PENINSULA MACKINAC HARBOR OFFERS MANY ATTRACTIONS.

Yachting in Michigan Waters

AN IDEAL LOCALITY FOR MOTOR BOATING AND SAILING THAT IS DEVELOPING RAPIDLY—WITH SOME 1400 MILES OF SHORE LINE, THE POSSIBILITIES ARE UNLIMITED

By F. B. LELAND

CONSISTING, as it does, of two peninsulas surrounded by the four largest of the Great Lakes, Michigan has, I believe, the longest coast line of any of the States. With a multitude of harbors, especially on the Lake Michigan shore, it is an ideal country for all kinds of boating, from canoeing, motor boating and skimming-dish sailing in the more sheltered waters to off-shore cruising on the open lakes. A trip of a thousand miles can be made along Michigan shores without retracing one's course, with plenty of quiet, land-locked harbors in which to drop the hook after a hard day's thresh in the open. All this in fresh water, where there are no tides to watch, and one has only to dip a cup overboard for a drink of pure, cool water. (Salt-water men, take notice!) To realize that Lake Michigan alone is three times as long as Long Island Sound, and

A 24-MILE SPEED BOAT, BUILT AT ALGONAC, MICH.

over three times as wide as that body of water at its widest point; that, stretched out along the Atlantic coast northward from New York, it would reach around the Cape to Kennebunkport, Me., or from Cape Cod to St. John, N. B., it is to understand better this vast empire of the fresh-water sailor man. On these waters are growing up scores of yacht clubs, developing clever sailormen, who can hand, reef and steer, lay out a compass course and work a boat to windward with the best of them. Motor boats and motor boat clubs abound on every bay and harbor of the long coast line.

Beginning in the southeast corner of the State, it will be seen that only a small portion of Michigan borders on Lake Erie, yet even on this strip of shore is located the very flourishing Monroe Yacht Club. Although handicapped by a poor harbor, this club holds, under the auspices of the Monroe Piers Regatta Association, a three days' regatta each year, and these meets are always well attended by yachts from Detroit, Toledo and Cleveland, often nine different clubs of the Inter-Lake Yachting Association being represented.

Where large centers of population are near navigable waters yacht clubs are always to be found, and Detroit is no exception. There are four organizations for sailing men and a motor boat club near the city. The adverse conditions under which yachting has developed at Detroit show what a hold the sport has in the Middle West. Given a river, which, though wide, has a two-mile current and many steamers going up and down it, the wonder is that any sailing at all should be done. But courses are laid out so that no windward work against the stream will be necessary, and races, with scores of contestants, are common. Eight miles above Detroit, on Grosse Pointe, in Lake St. Clair—that fine body of water between Lake Erie and Lake Huron—is the beautiful large home of the Detroit Country Club. With deep water in front and a good pier, it is ideally situated for yachting, and this part of its activities is enthusiastically fostered by many of the members.

Detroit has from twenty-five to thirty factories for the manufacture of marine engines and the building of boats, with a combined output of over fifty boats a day, so it is not strange that motor boats should be common. The recently-organized Detroit Motor Boat Club has a large membership and belongs to the American Power Boat Association. Many fine Eastern-designed cruisers and speed boats carry its burgee, as well as several auxiliaries.

In cruising north from Detroit one crosses Lake St. Clair and enters that queer American Venice called "The Flats." Here are clubs, hotels and cottages built on piles, or made land, with lagoons and canals between them, which are ideal avenues for canoes and small launches. In fact, the canoe is the popular means of locomotion at the Flats. Going on up the St. Clair River, it is generally necessary to get a tow from a passing freighter unless the boat has an engine. The current runs from 4 to 6 miles an hour, so it requires a gale astern to drive a sailing craft against it.

From the Flats to Port Huron beautiful country places on both the Canadian and Michigan shores form a continuous panorama

THE ROUGH, WILD SHORES OF THE NORTHERN PENINSULA MAKE AN IDEAL CRUISING GROUND.

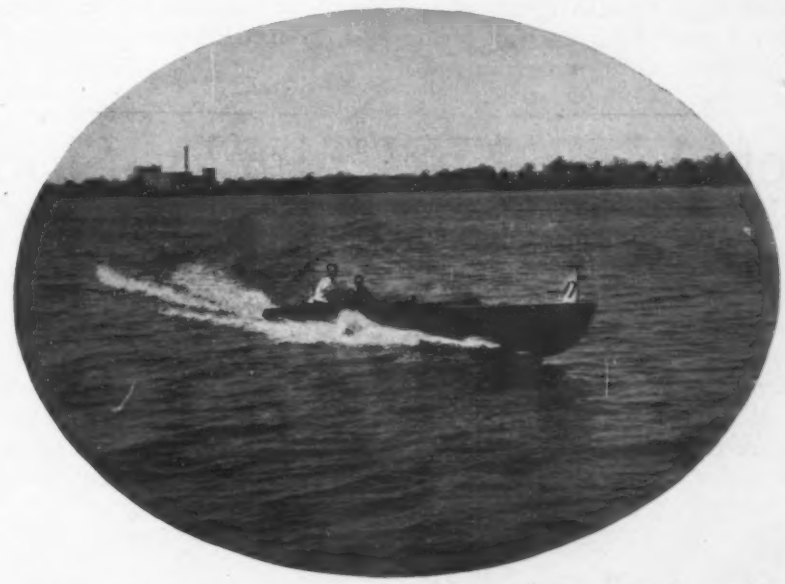
of green, well-kept lawns and fine houses. There is no good anchorage at Port Huron, and it is generally necessary to tie up at a dock. Perhaps because of this fact there is not much sailing, although several motor boats are owned by residents of the city.

To reach Lake Huron from Port Huron it is necessary to go through that part of the river known as "The Rapids," with nearly a seven-mile current. Passing out into the lake and rounding the lightship four miles out, a departure is taken for Harbor Beach, 60 miles to the north. Here a harbor of refuge has been formed by building breakwaters into the lake. It is the only port between Tawas Bay and Port Huron. The shore along this stretch is rocky or gravelly, with only slight indentations, and of a uniform height, with the forests and herbage growing close to the water's edge. In fact, nearly the whole of the western Lake Huron coast is of this character. There are many farms extending down to the shore, and an infrequent village with a pier extending out into the lake. The continuous procession of freighters with barges in tow passing up and down is a characteristic sight in Lake Huron. I have counted at one time as many as twenty-six vessels in view.

The next harbor suitable for boats of any size is Tawas Bay, 55 miles north of Harbor Beach, on Saginaw Bay. To get there you have to cross the mouth of Saginaw, which has the reputation of being one of the wickedest spots on the lakes. Coming south one time in a stout 50-foot cutter, a sou'wester struck us when off this place that made big freighters turn tail, and drove us so far before it, hove-to though we were, that it took us two days to get back again.

Tawas Bay is a fine sheet of water and a good anchorage, although somewhat unprotected from the southeast. In August the annual regatta of the Tawas Beach Yachting Association is usually held on the Bay, which attracts the Detroit, Bay City and Alpena yachtsmen. It is said they always have wind at Tawas, and that a race has never been postponed for lack of it. A specialty is made of motor boat races as well as those for the 21-foot sailing class. Bay City is the home of the "knock-down" motor boat, which has been the means of giving a craft to many an enthusiast with a slim purse. The city is located at the head of Saginaw Bay, on the Saginaw River. There are numerous power craft owned here, and several sailing yachts enrolled in the Bay City Boat Club. Among speed boats is the famous General II, winner at Palm Beach for two consecutive seasons. Above Bay City, on the river, is Saginaw. Going further north, the next port above Tawas is Au Sable, which is only possible for boats of light draft; and still further beyond comes Alpena, at the head of Thunder Bay. Although a fairly good anchorage may be had here in a beautiful bay, the town is chiefly devoted to lumbering, and there is little sailing. The big steam yacht Winyah, formerly Mrs. Andrew Carnegie's Dungeness, hails from this port.

In cruising north from Alpena no other good harbors are found until Mackinac Island, the Mecca of yachtsmen, is reached. The island has been the destination of the 300-mile Chicago to Mackinac cruising race, and here at the finish, below the walls of the old fort, may be seen a big fleet of yachts from all the lakes. Boats from Lake Michigan bound to Georgian Bay and Lake Superior, those from Lakes Huron and Erie, all drop anchor at some time during the season at Mackinac. The anchorage approaches an open roadstead, and while the straits are narrow here, a westerly blow will set the fleet rolling in a fashion bad for weak stomachs. From Mackinac many beautiful trips can be made eastward into the North Channel and Georgian Bay or up the St. Mary's River, through the locks, and into Lake Superior. Although the upper peninsula of Michigan has hundreds of miles of coast line on Lake Superior, it is a rocky and inhospitable shore, with few harbors, and boasts little yachting. Some able craft dare these waters for fishing and for a sight of the pictured rocks, but most of the cruising in Lake Superior is done along the north or Canadian shore.



GENERAL II AT BAY CITY. THIS WELL-KNOWN SPEED BOAT HAS BEEN A WINNER AT PALM BEACH FOR TWO SEASONS.

Leaving Mackinac, one continues west up the straits, and, turning Waugaushance and "Skillagalee" (Ile-au-galets) lights,

A SNUG HARBOR AMONG THE ISLANDS OF LAKE SUPERIOR.

GRAND RIVER OFFERS UNUSUAL OPPORTUNITIES FOR THE MOTOR BOAT.

heads southward, when, after a 65-mile run, the anchor is dropped in Little Traverse Bay. The names "Little Traverse" and "Grand Traverse" (that of the bay just below it) are interesting relics of the *voyageur* days on the lakes, of which many names remain. The *voyageurs* and Indians were forced to cross the mouths of these bays in their canoes, as they were too deep to allow them to follow the shores, according to their custom. Hence the names, meaning Little and Big Crossing. One can imagine them anxiously waiting calm weather, as the mouth of Grand Traverse is 12 miles wide. Little Traverse Bay is a beautiful sheet of water from 7 to 8 miles across, with high, wooded surrounding hills and a little, landlocked harbor formed by a curving point of sand. Here one may lie at anchor behind the trees in a perfect calm while a gale is blowing outside. The point, called Harbor Point, and the entire north shore of the bay are lined with resorts frequented principally by Southerners. On the north side of the harbor is the village of Harbor Point, where supplies may be procured. On the east end of the larger bay is the city of Petoskey. Regattas are held each season on the bay for a small, one-design class of sloops and larger craft. A feature of these meets is a race for Indians and fishermen in their mackinaws, a type of boat pointed at either end with a sort of ketch or a double cat rig peculiar to this part of Lake Michigan. They are very handy and seaworthy, and sometimes beat the yachts in a blow.

Fifteen miles south of the Point is Charlevoix, a place of many

(Continued on page 538.)

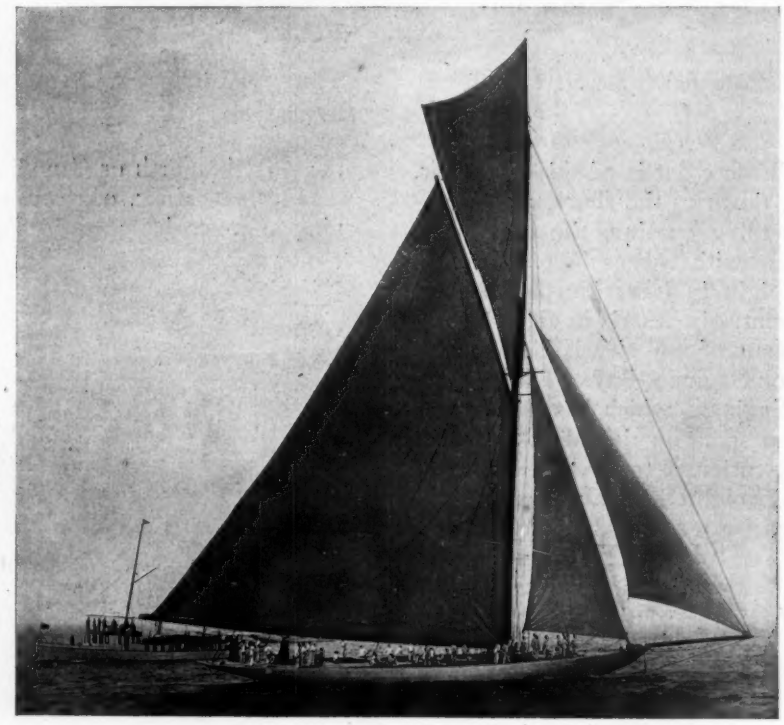
Defender—An Unlucky Sloop

By LAWRENCE PERRY

Photographs by J. S. Johnston. Copyright, 1895.

TO write of Defender is to write of brave days. Tall sloops raced then, and the red ichor of the sea gods ran trippingly through the veins of the patrons of our international yachting prestige. These were days when a challenge for the famed America's trophy meant a race and not a forensic contest among sea-lawyers, when a point asked was a point yielded in the name of sport, when the footing of bills of defense was money well spent, a patriotic duty cheerfully performed.

In these drab days of nautical retrenchment international cup racing is a calamity only to be met under dire necessity. You hear great legal talk, intricate and devious, whenever a challenge is suggested; and profound minds deal profoundly with profound problems, when through all, in everything, discerning minds recognize the taproot of it all to be the ever-increasing disinclination of men in whose care have long reposed our world-wide laurels to sign checks aggregating some six or seven hundred thousand dollars to the end that our British cousins may be discomfited and American pride correspondingly exalted. Well, seven hundred thousand dollars is a great deal of money, and if the province of criticism of such parsimony lies with anyone it certainly does not lie with those to whom such a sum would represent the wealth of Caius Caligula, in which category the writer must shamefacedly include himself. Nevertheless, with the situation as it is, it is pleasant to turn from the present to the days of the roaring past fourteen years ago.



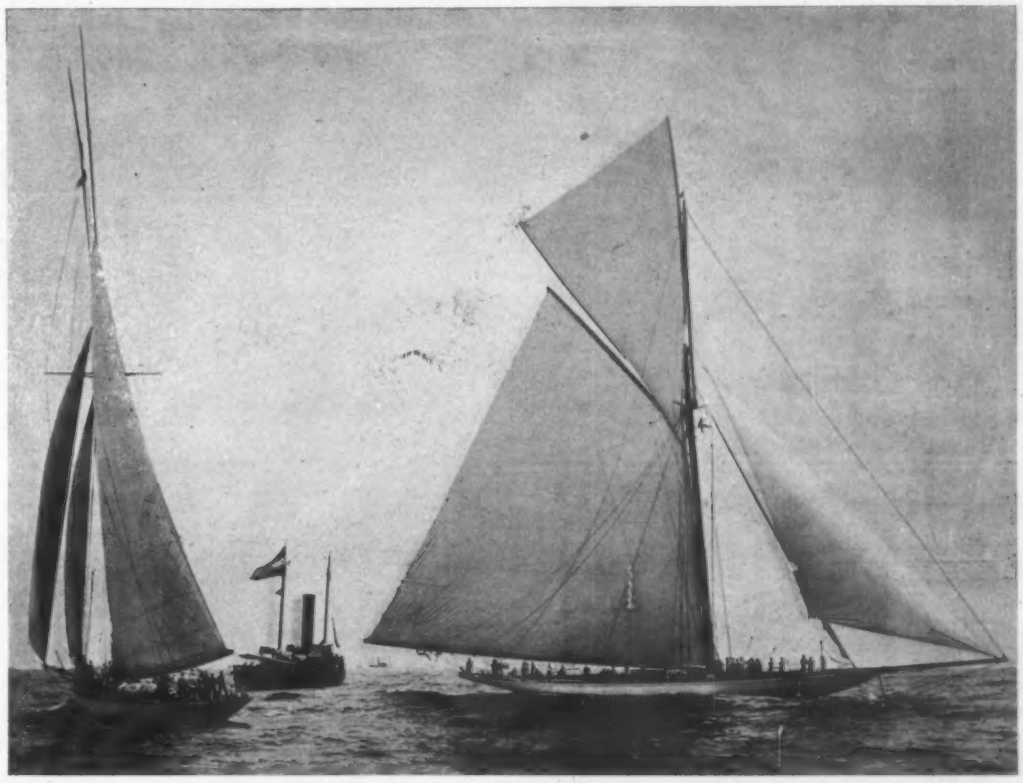
THE TALL DEFENDER AND HER CREW OF DEER ISLANDERS.

The star of Herreshoff was in the ascendant, and, while it still glows serene and alone, it is no more luminous to-day than in the early summer of 1895, when a beautiful sloop slid down into the waters of Narragansett Bay and made her maiden bow to an applauding nation. Defender! Unluckiest of sloops, launched under an evil star and rigged with curses dark; yet out of the alembic of the years she arises glorious, more sinned against than sinning, a boat to carry fondly in memory while stouter spars and stauncher hulls slip gradually into the limbo of dim things that were.

Undaunted by the downfall

of his ambitions in 1893, when Vigilant thrust her well-turned bows thrice over the finish line ahead of his Valkyrie, Lord Dunraven, in the fall of 1894, submitted, through the Royal Yacht Squadron, another challenge for the trophy, basing the fulfillment of his defiance upon several stipulations, which resulted in the politest sort of a correspondence, in which eventually both sides gave and took; which is to say that the Americans agreed to have racers measured with all weights on board, to allow Lord Dunraven to pick another sloop if, after trial races, he found that some other British cutters were swifter than the challenger, while the challengers, on the other hand, receded from their demand for a one-gun instead of a two-minute handicap start. All details, in short, were conducted as they should have been, and not a hitch occurred. You see, both sides were more eager to race than to talk, and this is a condition always productive of eventualities, as Mr. Kipling says.

Racing spirit was keen here. Two years before Vigilant had romped over the Sound and ocean always in the van of a fine pair of Boston candidates for the honor of meeting the Dunraven boat—Jubilee and Colonia — and later she had shown her heels to the Valkyrie. The next year she had gone to England, and had served more or less as an object for British sloops to sail rings around. Englishmen, as may be imagined, were, therefore, keen for another try at the mug, and Americans, mortified at the failure of "Hank" Haff and his boat in England, and anxious to regain their laurels, were naturally eager that one of England's foremost yachtsmen should make the attempt.



DEFENDER (TO THE LEFT) AND VALKYRIE III HANGING AROUND THE LINE FOR THE PREPARATORY SIGNAL.

And so, as suggested, Lord Dunraven's challenge went through the various formulas of acceptance on well-oiled wheels, and on January 14, 1895, it was formally accepted. Then came the question of a sloop to retain the cup. The success of Herreshoff's Vigilant, the last of the famed centerboarders, had been so pronounced that when the New York Yacht Club announced that a syndicate, consisting of William K. Vanderbilt, E. D. Morgan and C. Oliver Iselin, would place an order with Herreshoff for a 90-foot sloop, no men, or group of men, had the hardihood to order a boat from any other designer. Herreshoff's superiority was granted, and he showed his class by borrowing from the English the idea of a keel, whereas for years American defenders had been of the centerboard variety, and by incorporating aluminum as one of the chief elements of construction. It is true that in the course of a few years the action of this metal upon the bronze and steel produced so much corrosion that the sloop practically ate herself up; but the main thing is that the utmost lightness consistent with safety and speed was obtained. She was light in all verity; she was the lightest boat of her size ever seen, before or since. Her topsides plating, deck beams, rails and other structural parts were of aluminum with an alloy of steel and nickel, while her underbody and keel plates were bronze. Altogether, the saving in weight through the use of aluminum amounted to some fifteen tons, which was said at the time to be a conservative estimate.

Whatever the saving of weight, it must be admitted that Defender was not the safest boat in the world, especially so in the sturm und drang of ocean racing. Throughout her brief season of glory there were frequent charges of structural wear, and, while these were vigorously denied by Mr. Iselin, the general opinion of that day inclined suspiciously. But she was a fine-looking boat, broad of beam, with a full but finely-turned underbody and a deep keel. As captain, good, old "Hank" Haff was selected, and for the first time in the history of America's Cup racing the defending sloop had a crew of Americans, as hardy, as clear-headed, as strong-armed a band of shellbacks as ever trod deck. All Deer Islanders, they had been reared on the salt sea, and, throughout, they justified themselves in every way. Yet as they were the first crew of Americans to sail a cup defender, so they were the last, future defenders of the cup running strongly for Scandinavians, who, if a trifle slower witted than the Maine men, are more likely to stand being sworn at.

Defender had her first trial on Narragansett Bay early in July, 1895, and demonstrated her ability in a wind of average velocity. For one thing, she impressed observers with the speed with which she swung in and out of stays—a quality in which heretofore English challengers were supposed to have been superior. The next day, July 7, she raced and defeated Colonia, now the schooner yacht Corona, in the meantime awaiting Vigilant, which had been brought back from England by Mr. George J. Gould as a trial horse for the new sloop. It is interesting to observe that her captain was Charles Barr, who, arriving in this country in 1889, had already begun to attain fame as the skipper of Gloriana and Navahoe.

With the first race, a test contest between Defender and Vigilant on July 22, began that series of untoward incidents which eventually ruined the America's Cup series and sent the handsome Defender to retirement under a cloud which never lifted from her. She bore down upon Vigilant at the start of the race, which was off Sandy Hook, in such a manner as to cause Mr. E. A. Willard, Vigilant's sailing manager, to make a protest. In a race off Block Island in August, Defender, while leading Vigilant, Volunteer and Jubilee, broke her gaff and had to retire. On August 6 she met Vigilant, and a misunderstanding in manœuvering the two sloops occurred, which caused Mr. Willard to with-

draw Vigilant from further racing against Defender. He refrained from a formal protest on the ground that the rules of the New York Yacht Club held that a yacht against which two protests have been lodged and justified shall not again race under the auspices of the club. Mr. Willard had no wish to deprive the club of its defender; but he nevertheless felt he had been wronged, and announced that he was through with the racing. The affair gave birth to a torrent of letters and a great deal of bad feeling.

But the matter was finally smoothed over, with the result that, after Defender had met and defeated Jubilee by over nine minutes on August 8, an agreement for a series of three races between Defender and Vigilant to formally select a defender for the America's Cup was made. So, on August 20 Defender and Vigilant sailed to the starting line off Sandy Hook Lightship for the first race of the series, a beat of ten miles to windward and return, the course to be sailed twice over at the discretion of the regatta committee.

In the course of the first race Defender withdrew, because the band on her mast had slipped several inches, and she started immediately for Bristol for repairs. On the way she ran aground on an island in Narragansett Bay, but was not injured by her contact with the bottom, and on August 29 she was back off Sandy Hook prepared to complete the trial series with Vigilant. She won two races handily, and was accordingly selected as the boat to meet Valkyrie III, which, by the way, had been racing in English waters against Britannia and Ailsa, and beating them in such manner as to demonstrate that she was the most eligible craft to compete for the America's Cup.

DEFENDER DOWN THE WIND.

And so in the latter part of July the new challenger left Scotland for New York. In those gallant days challengers observed the spirit of the rule that yachts seeking to lift the cup must cross the Atlantic under sail, and Valkyrie III made the trip under jury rig in twenty-two days and some odd hours. She did not have any too much time in which to tune up. She did not have half enough time, as a matter of fact; but, well or ill prepared, she appeared at the line off the Jersey coast on the morning of September 7 for the first contest of the series. She was a fine boat, the best that Great Britain ever sent over here. She had beautiful lines, a broader beam even than Defender, and spread a suit of flawless canvas. William Cranfield commanded her, and Edward Sycamore, who later sailed Shamrock II against Columbia, was his assistant.

It was a clear, warm day, with a light southerly wind, which eventually shifted a bit to the eastward and so held. The ocean was jammed with a crowd of excursion boats, commanded by men whose habits and instincts, as revealed that day, were essentially porcine. There isn't much to say about the race. Starting at 12.20 on a course fifteen miles to windward and return, Valkyrie III led the way over the line by about four seconds. At 1.57 o'clock Defender passed to weather of the challenger, crossed her bows and took the lead. She was never headed, and won the race by more than nine minutes. Little did that howling, hooting mob of patriots who returned from the race on the excursion fleet realize that trouble was brewing which would deal America's Cup racing a blow from which it probably never would recover. (It has not recovered yet.) The New York Yacht Club cup committee was aware of it, however, immediately after the race, such intimation coming in the shape of a notice from Lord Dunraven that, in his opinion, Defender had sailed the race with a waterline eight inches or a foot longer than her measurement made by John Hyslop on September 6 would indicate. He requested a remeasurement, and accordingly the two boats went into the Erie Basin on September 8, and the tape line was again passed over them. The results showed that Defender's waterline length was practically the same as when she was formerly measured. Of course, if she had taken on extra ballast the night before the race it would have been an easy matter to have dumped it overboard before remeasurement. So Lord Dunraven held later, but for the time being he held his peace. It would be pleasant to record that all Americans were against him in his contention; but this could not be said at the time, and may not now be said, although of course no suspicion attached to the owners of Defender.

On September 10, the day set for the next race, there was a good southerly wind, and the course was laid with a leg ten miles to windward and two legs of similar length, involving close and broad reaches. The excursion fleet was present in undiminished numbers, and the least that can be said of the assembled craft was that they were ubiquitous. A minute or two before the start the two racers were making for the line with the wind coming over the starboard beam. A big excursion boat was in the way, and Defender went one side of her and Valkyrie the other. When they were clear of the interfering hulk it was seen that the two yachts were bearing for the line upon converging courses, Defender being to leeward and holding straight for the line. Valkyrie also held her course. When the two sloops were so near together that a collision seemed imminent, Valkyrie luffed, with the obvious intention of clearing the American boat by the shortest possible margin. But she did not quite make it. The tip of her boom caught Defender's topmast stay, there was a loud twang, and the topmast of the big sloop was pulled over to leeward. Mr. Iselin hoisted his protest flag and set about repairing damage as best he could. The topmast was hastily lashed, and then, seeing that Valkyrie had not turned back, but was kiting for the windward mark, Capt. Haff put his charge over the line, one minute and fifteen seconds late. She sailed a gallant race, did Defender. Those who saw her in that hopeless effort to offset the odds against her, sailing like a bird with a broken wing, struggling bravely to beat a boat which was able to carry thousands of feet more canvas, will never forget her. On the last leg she succeeded in outsailing the British cutter; but the handicap was too great, and she lost the race by 47 seconds, corrected time.

In the controversy that followed Lord Dunraven maintained

that Defender luffed into Valkyrie, but photographs taken of the accident did not bear out his assertion. His statement that he did not see the protest flag of course could not be disproved. The committee in charge of the series approved the protest and gave the race to Defender. That the committee would have been more tactful and wise, all things considered, had they ordered the race resailed, will not be gainsaid by any fair-minded sportsman.

A few hours after this race Lord Dunraven wrote to the cup committee, complaining that the crowding of excursion craft made fair racing impossible, and threatening to withdraw his sloop from further racing if the course was not kept clear. He suggested no plan by which this might be accomplished. The cup committee could devise none, and so on September 12 the course was jammed, as usual, with steamboats, whose captains were bound that their patrons should see the race even if they had to sink one or both of the contestants. But no race was seen. Valkyrie III came out to the line, under short canvas, and, after watching Defender start, returned to Sandy Hook.

So that was the end of the racing between Valkyrie III and Defender, a series in which the relative merits of the two rivals was never adequately tested. Lord Dunraven took his boat home, and later renewed his charges that the waterline length of Defender had been increased on the eve of the first race. The New York Yacht Club appointed a committee, consisting of J. P. Morgan, William C. Whitney and George L. Rives, to which Capt. Mahan and Edward J. Phelps were added, to investigate. The outcome of the matter was that the committee decided that Dunraven's charges were unfounded, and he was dismissed from honorary membership in the New York Yacht Club. As for the Defender, she retired from the public eye, not to reappear until 1899, when she served as a trial horse for Columbia. Two years later they decided to break her up. She was at New London, and W. B. Duncan, Jr., if I remember aright, sailed her down to City Island. She sailed as she had never sailed before, sailed as though she knew it was the last time she would ever breast the crested wave. On and on she boomed, making the eighty-odd miles faster than they had ever been made before. So she will sail in memory as long as men hold their love for good boats.

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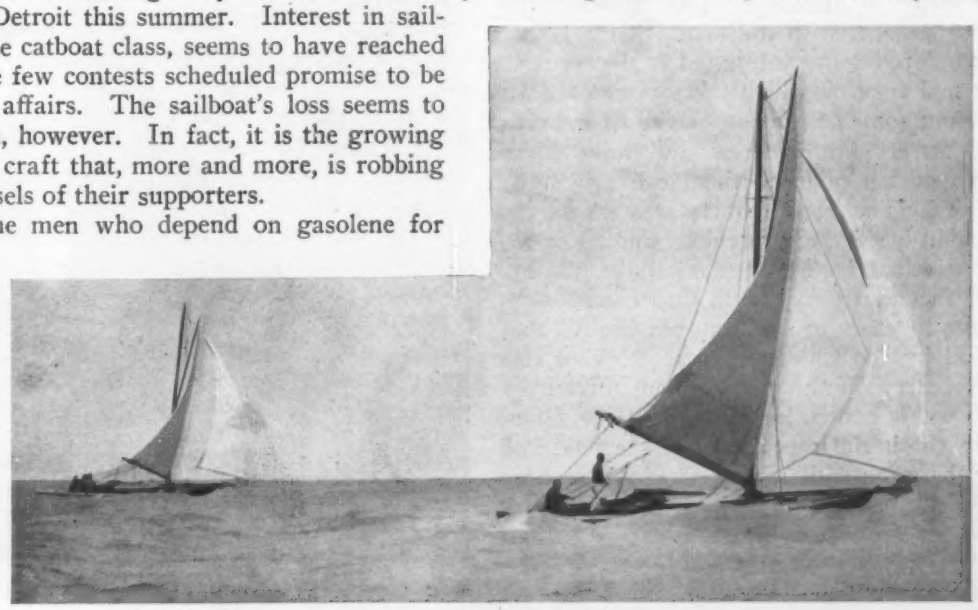
THE BEAUTIFUL HOME OF THE DETROIT COUNTRY CLUB AT GROSSE POINTE. THIS ORGANIZATION HAS DONE MUCH TO FOSTER YACHTING ON LAKE ST. CLAIR.

Power Boating and Sailing on the Detroit River and Lake St. Clair

By EDW. A. BATCHELOR

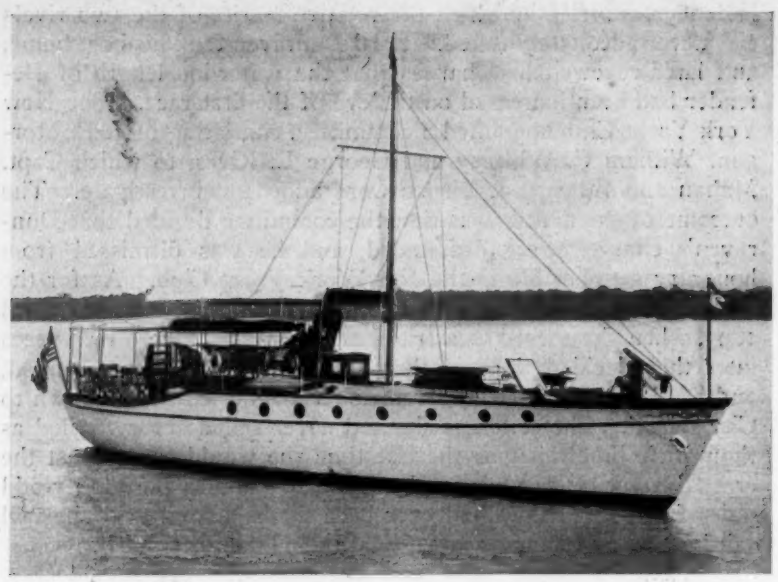
JUDGING from present indications, the motor boat men and the catboat sailors will have things very much their own way in the vicinity of Detroit this summer. Interest in sailboat racing, except in the catboat class, seems to have reached low-water mark, and the few contests scheduled promise to be tame and uninteresting affairs. The sailboat's loss seems to be the motor boat's gain, however. In fact, it is the growing popularity of the power craft that, more and more, is robbing the canvas-propelled vessels of their supporters.

Never before have the men who depend on gasolene for their propulsion had such rosy prospects on the Detroit River and Lake St. Clair. There were hundreds of motor boats in Detroit last season, and more have been added during the winter to a fleet that probably is among the largest claimed by any one city in the country. A number of prominent yachtsmen recently were discussing the number of these craft making their home port in the City of the Straits, and their estimates ran from 1,000 to 1,200. Such figures seem almost incredible until one sees the myriad of boats swarming on the river on a bright summer afternoon.



SPRITE AND OTSIKETA RACING IN 21-FOOT CLASS ON LAKE ST. CLAIR.

The racing game will be strong among the chug-chug people, and promises to be more generally satisfactory than ever before. This really is not saying a great deal, for in past seasons there has been much of the comic about the contests. Poorly understood rules, which, in many cases, were not



ALTHEA, A DETROIT BOAT, OWNED BY C. H. MURPHY.

adapted to the conditions, accounted for most of the trouble. This season the Detroit Motor Boat Club will hold its races under rules that promise to be much more satisfactory than any other code yet tried in local waters. The racing committee of this organization consists of a number of the most practical power-boat men in the country, whose opinions are sought by yachtsmen in all sections of the Great Lakes.

Motor-boat racing is certain to be one of the biggest features of the Interlake regatta at Toledo in August. The sail and power events will be entirely separate this year, each in charge of its own committee, an arrangement which has proved satisfactory wherever tried. The Toledo Yacht Club has secured more than twenty cups, to be awarded at this regatta; but has somewhat taken the edge off the yachtsmen's joy by deciding to make the majority of them perpetual trophies. The idea of racing for the same old mug year after year never has appealed very strongly to Great Lakes tars, and it would have been a more popular scheme for the Maumee Club to have given each cup outright to its first winner.

In recent years, no yachting organization located on the lower part of the lakes has done more to foster the game than the Country Club of Detroit. Yachting is only one of the several branches of sport which this club goes in for, but the sailor contingent is composed of such energetic spirits that it manages to absorb rather more than a fair share of attention. Last summer the yachtsmen of the club reorganized, with the result that a larger number of men than ever before became interested in the sport.

The Country Club's annual regatta, which takes place early in September, always brings out some of the best racing of the season. Other events may attract larger fleets and have more classes, but for keen competition none of them can touch the Grosse Pointe club's affairs. The 1908 regatta was no exception to the rule, exceeding in interest any previous annual of recent years. One of the principal factors in making the affair a success last year was the fact that two Lipton Cup competitors, Cleveland and Spray, came together to settle an old grudge that was only partially decided by the Chicago races. Neither one of these boats was able to carry off the coveted mug offered by Sir Thomas, though each was a contender throughout the series. Cleveland finished first in the initial race, and lost the final and the cup through beating the gun; while Spray would have been first in the second of the series of contests had not the poor work of the judges taken from her the victory that she earned in half a gale.

When they met at the Detroit races, Cleveland won the first event and Spray the other two. Spray's victory thus gave her possession of the Walker competitive cup, to be held for one year. The series of races was sailed on a percentage system, first place in each race giving 100 points, and the following positions correspondingly fewer points. The final standing was Spray 240, Cleveland 220, Spite 180, Otsiketa 160, Ste. Claire 100.

While the 21-foot class races attracted the major part of the interest last year, there was some excellent sport in other divisions. There were three races for the 16-footers, one contest for the cruisers that are unable to break into the restricted classes, and a series of brushes for the power boats, that are demanding a place on every regatta programme these days.

The Country Club of Detroit has taken the lead this season in building new cats, having ordered four from designs by George Owen, of Newton, Mass. The Grosse Pointe tars have done little in the way of racing in this class recently; but there are some good sailors among them, and, with fast boats, this club will have to be reckoned with in the coming races. As far as sailing races in the vicinity of Detroit are concerned, it looks as though the catboat would completely overshadow all other classes. The little single-stickers, always popular on the Detroit River, have been given a big boom by the presentation of a cup by President Taft, to be raced for by all cats enrolled in Interlake clubs. This trophy will be competed for during the big regatta at Toledo in August.

Three boats are eligible to enter from any of the Interlake clubs, and a big fleet is certain to cross the line in each race of the series that will determine the first winner of the mug. Everywhere on the lower lakes yachtsmen are building boats to try for the Taft trophy. In many cases, plans have been secured from Eastern designers, with the construction work entrusted to local boatbuilders. There are any number of fresh-water sailors who decline to believe that the East can teach them anything about catboats, however, so Western designers are not by any means being frozen out.

Encouraged by successes in the last two years, the Detroit Yacht Club will depend on its old cats to carry off honors in local regattas and at Toledo this summer. It is generally admitted

(Continued on page 540.)

ST. CLAIRE, ONE OF DETROIT'S CRACK 21-FOOTERS.

LARCHMONT HARBOR, WHICH WILL BE THE SCENE OF MOST OF THE FUTURE MOTOR BOAT RACING UNDER THE AUSPICES OF THE A. C. A.

The Month in Yachting

Photographs by Edwin Levick and W. B. Jackson, Courtesy of Stanley M. Seaman

IF all the undercurrent of gossip concerning the unfortunate outcome of the visit of Dixie II and Standard to the Mediterranean ever comes to the surface, our British cousins will have opportunity for a smile or two. Perhaps it will be just as well if all that has been said and is being said remain submerged, bearing in mind the fact that explanations of defeat, when presented by the parties defeated, are liable to lay them open to the suspicion that they are bad losers. Upon second thought, this unenviable condition might be worth risking, in view of the benefit which should accrue to the motor-boat racing interests of this country from a free and open discussion of the fiasco at Monaco.

It is not my purpose to enter deeply into this matter at the present time—much as I should like to—if only for the reason that assertions which have been made in the past fortnight have been based on hearsay, evidence hardly to be regarded as satisfactory. One charge, however—that of lack of proper preparation for participation in the world's most important motor boat events—seems thoroughly substantiated, and, therefore, may fitly be regarded as legitimate excuse for the repetition of an old sermon, dressed, for variety's sake, in new verbiage. Preparedness is the text. This seems to be regarded by many of our racing power-boatmen as a minor consideration. The whole idea, apparently, is to slap together a hull of some sort, throw an engine into it, and then, after a two or three days' trial, send the boat to the starting line for her supreme test. Everyone remembers the miserable showing which characterized the trial races to select a defender for the Harmsworth Cup on Huntington Harbor last year. Of all the racers ostensibly built as candidates for the honor of meeting the two British challengers only Dixie II was fully qualified for the test. Most of the boats named as contestants in the trials never appeared at all, and those that did turn up, aside from the Schroeder boat, revealed mediocrity or worse. About three months before the races at Monaco a designer was approached by a man with an order to create a racer to compete in the events on the Mediterranean. The designer refused the commission, and, in presenting reasons therefor, demonstrated to the satisfaction of his would-be customer the utter folly of going about the purchase of a motor craft designed to win prizes as he would proceed in the matter of purchasing a racing automobile or a French clock or a bag of peanuts.

"Give me an order now for a boat to enter at Monaco in 1910," said the designer, "and I will undertake the job and will guarantee you a hull worthy of the best engine that can be installed in her. As for the engine, order that now, too. We will begin to try her out next summer. When the time comes to go to Monaco you will have a craft that will do you and the country credit."

The customer said he would think it over. He is still thinking. Dixie II was prepared last year to meet the best boat of her class in the world, which she did, and won. Mr. Clinton H. Crane, who designed her, knew what he was doing every minute. He had the engines running in the shops long before they were installed in the hull—a hull, by the way, which was not a coffin, nor a dry goods box, but a genuine product of painstaking study of the influences of power-boat design upon speed. But just because Dixie defeated Wolseley-Siddeley last year was no reason why it should be taken for granted she could have a new hull rushed upon her, be shoveled aboard a steamship—but, there, I am discussing things I said I would not. Suffice to say that the development of speed in a motor boat and its maintenance after it has been developed involve a whole lot of serious, scientific consideration, and when all of us realize this we will have placed the game upon a firm basis here.

At last proud Mackinac has received a jolt which has been coming to that resort for some time. The Yacht Owners' Association of the Chicago Yacht Club has decided to change the port of destination for the annual Mackinac race hereafter. It has been common remark that the people at the head of Lake Michigan

LITTLE HASTE, THE CRACK NARRAGANSETT BAY SLOOP, WHICH SANK RECENTLY ON THE WAY TO BARNEGAT BAY.

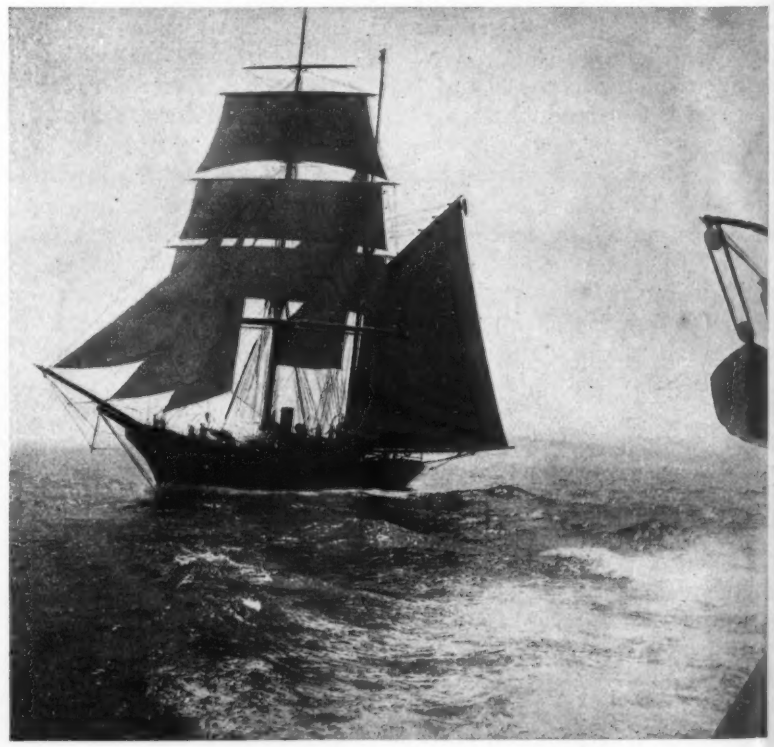
have never been unduly excited over the honor which the Chicago yachtsmen paid them year after year, which may be taken as indication that the Mackinackians were not alive to their opportunities. So the racing yachtsmen will go elsewhere. Just where has not been decided. Care should be taken not to shorten the race materially. This warning is given because several lake ports within a hundred and fifty miles of Chicago have already bid for the distinction of having the racing squadron finish the thresh in their harbors. A radical cut in distance might have the result of changing the character of the event, and that would be a calamity, since in yachting tradition is a highly desirable element. Chicago has not so much of this element that it can afford to dispense with a tithe of it. Why not go to Green Bay? This would involve a splendid jaunt along the west coast of Lake Michigan. Last year a fleet of motor boats cruised to this harbor, and those who took part in the trip are still enthusiastic over the place.

I wonder how the rule passed by the Chicago Yacht Club, that none but Corinthian skippers shall be permitted to handle participants in this Mackinac race, will work out? As a general proposition, all rules which make for amateurism are to be applauded. In the present instance there seems little doubt that the action of the Lake Michigan sailors was aimed at Dr. Walter Baum's Amorita and William Thompson's Valmore, both of which craft were imported from the East and are schooners of class. Last year Valmore was sailed by a professional and won the Mackinac race handily. It was undoubtedly Dr. Baum's intention to have had a professional shellback at the stick of Amorita in her maiden race on fresh water, and the rule may work hardship for him. The point is this: Dr. Baum was at considerable expense in purchasing the Cary Smith boat and in preparing her for her long trip up the Atlantic Coast and through the lakes to Chicago. Moreover, he has secured a crack boat for Lake Michigan, and that is a good thing; the more good boats afloat on any body of water the keener the sport. Men who bring about this condition have the right spirit, and this spirit is to be fostered and encouraged in every possible way. Where the sport is in process of upbuilding, as on Lake Michigan, it is wise to proceed carefully in the matter of adverse legislation until the game is fairly on its feet. I do not say that this action of the Chicago Yacht Club was unwise or unfair, but I do say that the more encouragement given to men like Mr. Thompson and Dr. Baum the better. Professionalism in any sport in which gentlemen engage is an evil, and should be dealt with summarily; but bear in mind that it should be dealt with in the proper spirit and not merely because one or two gentlemen happen to own swift boats.

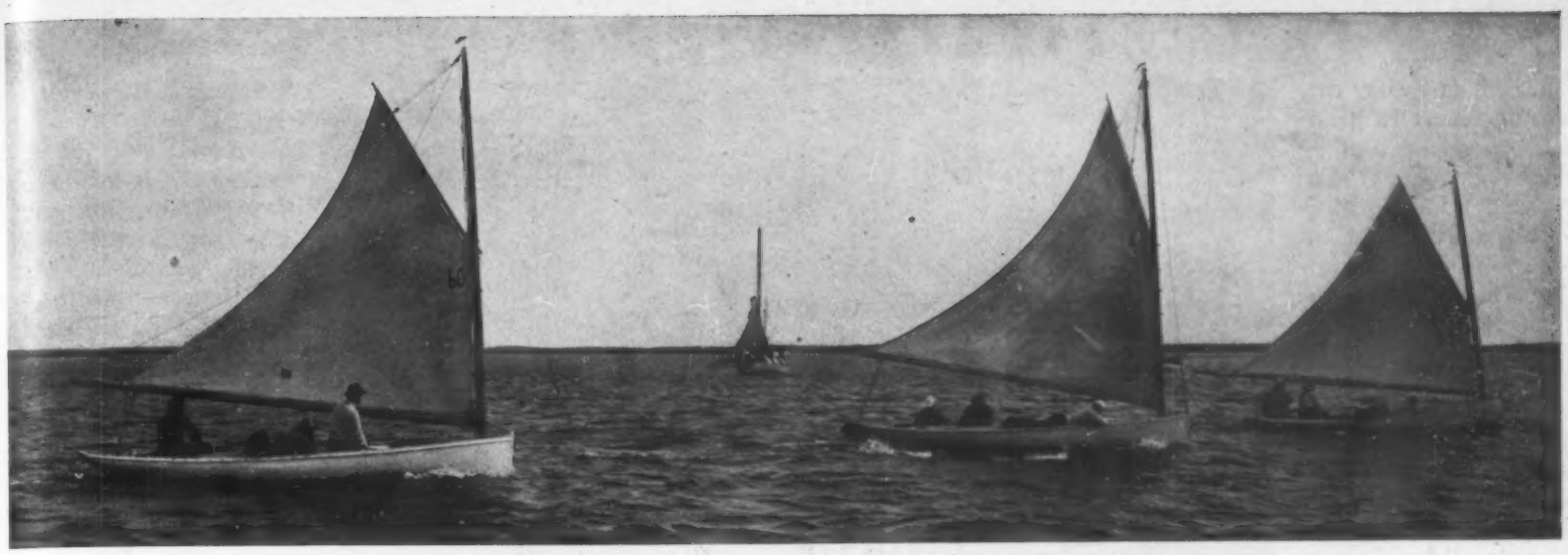
There is a new spirit in the New York Yacht Club since the regatta committee of that organization rose in its might and tossed tradition overboard. It was long ago patent that racing members of the club were growing tired of sailing around and around in circles off Glen Cove, as evidence of which behold an average attendance of about a dozen racing yachts, more than half under 40 feet rating, at the various regattas in the past few years. With the annual regatta lengthened into a run from Glen Cove to Newport in July and a return race back to the Cove, and one around Block Island, we shall expect to see an outpouring of windjammers commensurate with the dignity and importance of the largest and wealthiest sporting organization in the world. Commodore James, himself, with his auxiliary flagship Aloha, in which he has taken many offshore cruises, is more of a windjammer than a steam-yacht sailor, and he may be relied upon to further any plans his committee may make to bring the sailing fleet to the fore.

With papers of alliance signed by the Automobile Club of America, the Larchmont Yacht Club and the Motor Boat Club of America, we may look forward to a future of motor boat racing in this country that seems altogether alluring. Motor-boat racing is a young sport here, and the fact that it has, up to the present time, developed along more or less haphazard lines, was to be expected. The tri-club alliance now comes along in the line of proper evolution, and with this confederated balance wheel, so to speak, the sport will proceed with precision to its appointed station in the nation's sporting affairs. The question of measurement will no doubt be taken up and finally adjusted, which will be a very important step—the sooner the better—and, all in all, the results of this new move will inevitably tend to establish the

(Continued on page 530.)



ALOHA, FLAGSHIP OF COMMODORE JAMES, N. Y. Y. C. SHE IS TO BE REPLACED NEXT YEAR BY A 200-FOOT BARK RIGGED AUXILIARY.



ON GREAT SOUTH BAY THE CATBOAT IN ITS ORIGINAL STATE STILL FLOURISHES.

The Catboat

A SHORT HISTORY OF THE DEVELOPMENT OF THE TYPE, ITS PHENOMENAL GROWTH AND THE CAUSES THAT HAVE BEEN RESPONSIBLE FOR ITS DECLINE IN POPULARITY

By ARTHUR F. ALDRIDGE

IT is not so very many years ago that every club regatta brought a big fleet of catboats to the line. These small craft furnished half of the sport, and the races were always keenly sailed and the contests close. The catboat was the popular type for the man of small means, but of late years this type of craft has gone out of fashion and now it is the sloop that is wanted. Just what caused the change is hard to say; but fashions change in yachts just as they do in my lady's bonnet, and a man, to be in style in the yachting world, must have a boat that is fashionable. There are still some who stick to the catboat and are not swayed by the whims of fashion, but they are almost as few as the men who defy the edict and wear straw hats after the 15th of September. The catboat is an ideal craft for one who can afford only a few feet of sailing length, having more room for her size than any other type. She can sail better than many boats much larger, and, blow high or blow low, in storms and calms, when drifting with the tide or sailing against it, she can always be counted on to do well. She is a one-man boat unless she is a large craft, and on a 20-foot waterline she can have a cabin in which two may live and cruise with all the necessary comforts; and yet in these days one may be purchased for a comparatively few dollars.

THE ENDEAVOR TO BEAT THE RATING HAS PRODUCED THIS TYPE OF CATBOAT.

THE SANE, WHOLESOME CABIN CAT OF CAPE COD AND MASSACHUSETTS BAY.

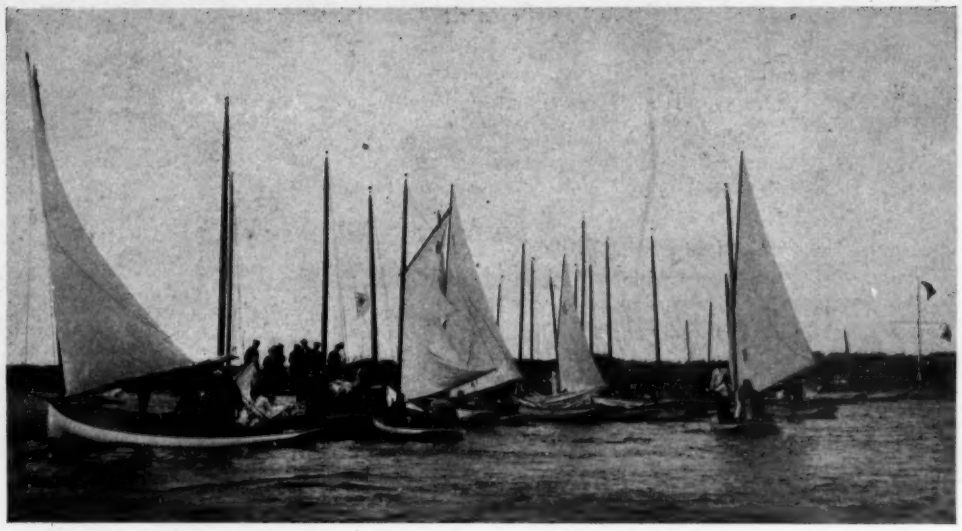
The fishermen were the first to race catboats, and later the attention of yachtsmen was turned to them, and, possibly, it was the yachtsmen who killed the sport. Each year some one would try to get the fastest boat. Designers were engaged to improve the type, to crowd on as much sail as possible, to take every advantage of the rules of measurement, and by degrees the old type disappeared and the catboat was modernized. Long overhangs and balance rudders were added, the construction became light and flimsy, and the craft that had been noted for its seaworthiness degenerated to a mere racing machine.

In those earlier days it was hot work to race on a catboat. Nearly all the racing craft were open boats with loose ballast. They were manned by a crew of enthusiasts; each man had his work cut out for him, and, when it blew freshly, had to take a wetting, too. There was only one sail to be handled, but that had to be trimmed smartly when the order was given. It was when turning to windward in one of these open boats that the crew worked. Each time the vessel tacked the ballast had to be shifted, and the bags of sand were changed from one side of the boat to the other as fast as she would come about. Sometimes she came about too quickly, and then a bag would go overboard, and at times a man with it; but it was all in the day's sport. It was the same as in the old jib-and-mainsail sandbagger. Now racing yachts have fixed ballast and that excitement has gone.

There are still catboats. Some raced last year in the regattas on the Sound or elsewhere, but they are modern craft with spoon bows and drawn-out sterns. They can sail fast, too, but they will not go out and race when there is a stiff northeaster blowing and a bobble of sea; whereas in the old days the catboat would

take whatever the weather chose to hand out.

The catboat is an American type of yacht, and is said to have originated with the fishermen of New Jersey. The original catboat was about 24 feet long, 11 feet beam and 3 feet draft. It had a plum stem and stern, so that it was the same length on the waterline as it was over all. This size was generally accepted because, under the measurement rules then in force, such a boat was a little less than 5 tons register, and consequently escaped the payment of Custom House fees. The greatest beam of these boats was at a point about one-tenth of the length aft of the middle section, and from that point the sides would gradually turn in until at the stern the beam was about 9 feet. A boat of this size would carry 3½ tons on 18 inches average draft and 4½ tons on 2 feet draft.



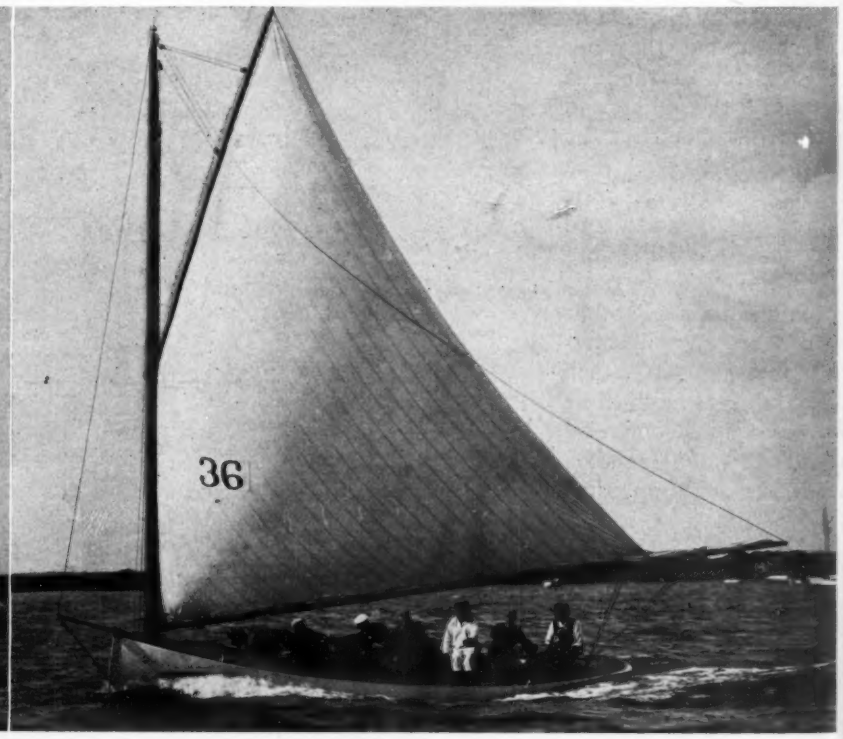
THERE ARE NO SIGNS ON GREAT SOUTH BAY OF THE DECAY OF THE TYPE.

The keels of these boats ran perfectly straight. The stem was slightly rounded in most instances, although sometimes it was set at right angles to the keel, and at the forward end the draft would be about a foot, which would increase to the point of greatest draft at the rudder. This rudder was set on the sternboard, and consisted of a broad piece of wood that reached to the keel and rose just a few inches above the waterline. The model of the hull was flat and full, the bow sharp, the beam broad, the run lean, and the stern above water almost perpendicular, V-shaped and very broad on deck. On top they were shaped almost like a flatiron. But one mast was carried, and that was stepped right in the bow and often raked slightly forward. The boom was long and extended several feet over the stern. Usually these boats were decked over forward as far aft as the centerboard trunk—for all catboats carried centerboards—and this board, when hoisted, would project above the deck. The decking was usually carried along the sides of the vessel and at the stern for 12 or more inches, and this left an open cockpit, elliptical in shape, with a seat running around the sides. Loose ballast was carried in the shape of heavy stones, bars of iron, water casks, or bags of sand, and this ballast was placed under the flooring of the cockpit and along the sides of the centerboard trunk.

Just when the first catboat was built no one seems to know, but it soon became very popular. In New Jersey the fishermen built them, and in the old days the first thing that a boy learned was how to shoot, the next how to sail a boat, and then how to build one. There was plenty of timber suitable for catboats, and an energetic man could procure sufficient to build a 24-foot boat in a day. The frames were cut from cedar roots, which, after being dug, were sent to the sawmill to be cut to the desired lengths. Oak or cedar was used for the planking, the keel was of oak and the deck of pine. A boat built for use in the oyster fishery would cost about $250. The oyster men were the first to enter them in races, and, if the boat was fast enough to win a race, its value was at once almost doubled.

Like the dory, the catboat soon attracted attention in other waters, and the Cape Cod catboat became prominent. This craft

THE MODIFIED CATBOAT OF GREAT SOUTH BAY HAS THE OVERHANGING ENDS OF THE MODERN SLOOP.



THE STRAIGHT-STEMMED RACING CAT OF THE OLDER TYPE WAS A VERY ABLE CRAFT.

is similar in type to the New Jersey craft, but is larger and more able and roomy. They have large cabins and cockpits, and on their one mast spread enormous pieces of canvas. More care was taken in the model of these boats, and, on account of their size, the construction was a serious proposition. It could not be built in one's back yard, but was turned out at some shipyard from designs furnished by a naval architect. These boats are popular in Eastern waters still. There is quite a fleet of them at Newport, Nantucket, and at Vineyard Haven. At Provincetown there are more, and at every port along the New England coast these big, comfortable catboats are to be seen. For a time they lost popular favor, but of recent years the Cape Catboat Association of Massachusetts has done much to revive interest and the fleet still races regularly.

THE SHALLOW RACING CAT OF BARNEGAT BAY. NOTICE THE BILGE CENTERBOARD AND METHOD OF USING THE DOUBLE RUDDER.

Several Massachusetts yachtsmen, wishing to stimulate interest in Cape Cod cats, organized in 1904 the Cape Catboat Association. Special rules were adopted for a period of three years, and these rules are to be changed shortly, because many of the members think the type will be better preserved if bowsprits and jibs, which they have been allowed to carry, are abolished. The bowsprit does not belong to the catboat, and one properly balanced will sail much better without it. According to the rules of this association, a catboat must be "a seaworthy cruising or racing craft of centerboard type, strongly constructed, properly ballasted with fixed ballast, having good freeboard and substantial cabin trunk, with suitable cabin accommodations for cruising. No boat shall be admitted having a full, blunt bow, square sides, double rudders, bilge or lee-boards, reverse curves in the fore-and-aft center line, or any unusual features."

There are catboats that sail and race on Great South Bay, and the yachtsmen who handle them are experts. The waters of the bay are shoal, and a light-draft, beamy boat is what is required, for which reason the catboat has held its own in popularity, although even here the light-draft sloops and knockabouts are pushing the cat very hard. Here the yachtsmen who race the catboat have preserved it in almost its original type, and extreme racing boats are barred by the rules, which tax overhang.

There are still catboats that are raced on Long Island Sound, though in the smaller classes. The Indian Harbor Yacht Club has a class built from a design by Morgan Barney which cost $350 each. These are about 14 feet long, and make good boats for

(Continued on page 530.)

Open Motor Boats and Their Accommodations

CHANGES THAT HAVE TAKEN PLACE IN THE DESIGN AND ARRANGEMENT OF OPEN LAUNCHES DURING THE LAST FEW YEARS—A SURPRISING AMOUNT OF COMFORT TO BE HAD IN A SMALL BOAT

By E. T. KEYSER

Illustrations by courtesy of Rochester Gas Engine Company, Bath Marine Construction Company, and Detroit Boat Company

FOR every cabin cruiser that goes overboard 100 small open craft, from 16 to 25 feet long, are launched, and nine times out of ten it is through the small open boat that the average man gets his first taste of power boating and becomes imbued with a love for the craft. Eventually a large proportion of the open-boat owners graduate into the cabin-cruiser class, and that is why the small open boat plays no small part in the development and support of motor boating. When it is taken into consideration how much a man can secure to-day in the way of a boat at a very moderate figure, it is no wonder that the bicycle and the motor-cycle are as scarce as we find them; for with the same expenditure necessary for the purchase of a motor-cycle one may secure a well-built little power boat that will comfortably carry from four to six people.

This matter of taking care of the passenger's comfort depends not only on the size of the boat, but upon the manner in which her seating arrangements are laid out, and, still further, upon the use to which she will be put. Some years ago there was practically one type of arrangement for small open motor boats, which consisted of locker seats which ran along the sides, the after portion being utilized as tool lockers. The engine, at the stern of the

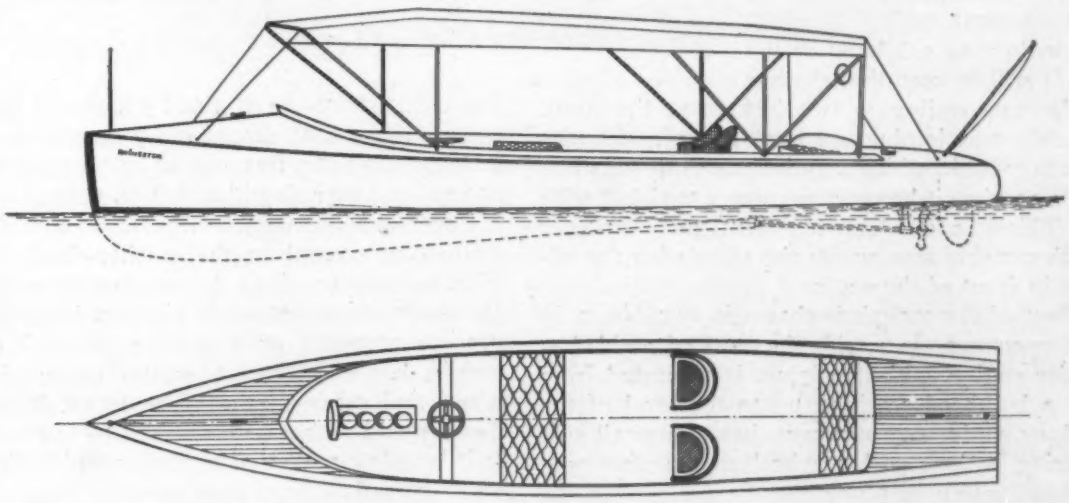


Fig. 1.—Cockpit plan of a 25-foot semi-speed boat. This arrangement provides comfort for the operator and a certain degree of elasticity in carrying capacity.

Fig. 2.—A modification of the conventional side locker seat as applied to a 23-foot Cape Ann Dory.

boat—for we shoved the engine just as far aft as we could possibly get it—rendered the after end of the side seats impractical for seating purposes, hence their sacrifice to stowage of tools, equipment and sundries.

As a matter of fact, when one boat manufacturing concern first put on the market what is now known as a compromise stern, but called by them a torpedo-stern craft, one of the principal advantages which was claimed for it was that the increased waterline and the more generous area of wetted surface aft allowed the placing of the engine further toward the stern than could be done with the older fantail type of stern. But to-day we are putting the engine almost anywhere. We put it amidships, put it in the bow, put it in any place that is convenient, and then we build our seating accommodations around it. And we also realize now that it depends a great deal upon the purposes for which the boat is used as to how the seats should be arranged.

In a moderate-sized craft of the speed or semi-speed type, one of the most popular arrangements is a 'thwartship seat for the steersmen just aft of a bulkhead separating the forward engine compartment from the cockpit and a second broad cross seat with a lazy-back at the extreme stern, while the intervening space is left open for the accommodation of chairs. This arrangement is shown in Fig. No. 1. The advantages which it offers are a comfortable position for the engineer or pilot, allowing him to be within easy reach of his engine controls and steering wheel, and at the same time giving him a direct view forward and a much more easy position, particularly on a long trick at the wheel, than would be the case if he were steering from a side seat. Moreover, it gives a free and roomy cockpit when but a few people are aboard, and makes the accommodations rather elastic in regard to the number of people that may be carried.

Fig. No. 2 shows a modification of the older form of seating arrangement applied to a 23-foot Cape Cod power dory as exhibited at the last Boston Show. It will be seen that she has the conventional side seats ending in two lockers at the stern, but that the 'thwartship seat joining the two, just aft of amidships, is fitted with a lazy-back, which may be turned down when starting up the engine or when it becomes necessary to tinker with the motive power. This is a good arrangement, and combines the comfort of the 'thwartship seat across the stern with the advantage of a location in front of the engine.

Another arrangement of the cockpit is shown in Fig. No. 3, in which the engine compartment is a trifle forward of amidsihps and the single-cylinder engine, with its piping, is separated from the after cockpit by a bulkhead reaching up to the level of the seats. The forward, or engine compartment, has two small side seats, while the steering is done with a wheel on the after side of the midship bulkhead within easy reach of the forward of the two 'thwartship lazy-back seats with which the after cockpit is provided. The great tendency towards these 'thwartship lazy-back seats in a modern open boat is due to their superior comfort over the older type of locker seats running fore and aft; for not only does the 'thwartship seat afford facilities for a wider cushion, but the back with which it is equipped is much more comfortable, particularly on long runs, than is a narrow and hard coaming that catches one in the small of the back.

The separation of the engine from the passengers is a great convenience, particularly when a number of guests are carried, as it not only prevents all chance of soiling of clothes by grease, but removes the often irresistible temptation to the over-curious and inexperienced to tamper with the motor when the engineer's back is turned

As a general thing, carrying the tiller and steering gear above deck is preferable to having them concealed below the deck planking. Of course, it does not leave the deck free and clear, as with the tiller and lines below and out of sight; but in the event of anything going wrong repairs can be more quickly made and control of the boat may be had, which is, at critical times, far preferable to fishing under the after deck, particularly when a makehift tiller must be called into immediate action.

One of the great differences which exist between a modern open power boat and those of a decade ago lies in the smaller amount of deck room which is wasted in the moderate-sized, moderate-powered open launch. It used to be the fashion to have long forward and after decks at the expense of cockpit space. Of course, with a high-speed craft, or one in which very rough water is to be habitually navigated, a long forward deck tends to dryness; but for every-day, all-round use for a boat making from 8 to 10½ miles per hour this dryness can be obtained by means of a small spray hood forward.

In the matter of fittings for a small craft there is a certain proportion to be observed between the size of the boat and the fittings, which is productive of harmony and will add to the appearance of the boat. For instance, a 12-inch steering wheel is correct for a launch up to 20 feet in length—from 25 to 30 feet a 16-inch wheel is in better proportion. For an 18 to 20-foot boat the bevel chocks should be 4½ inches in length. For a 20 to 25-foot boat, 5½ inches. For these respective lengths of craft the flag poles should be of 1 and 1½ inches in diameter, respectively.

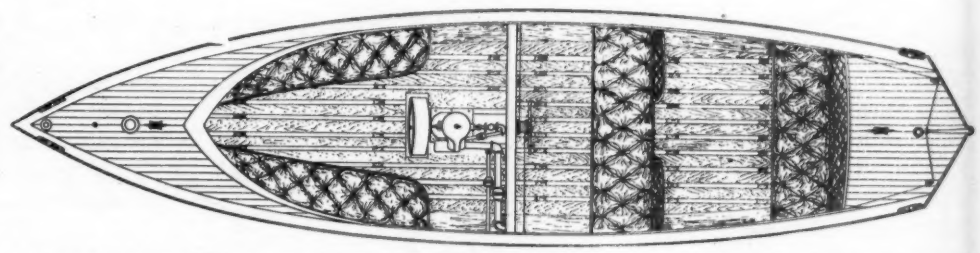


Fig. 3.—A double cockpit arrangement, allowing the separation of passengers from engine space, and permitting the boat to be handled from amidships.

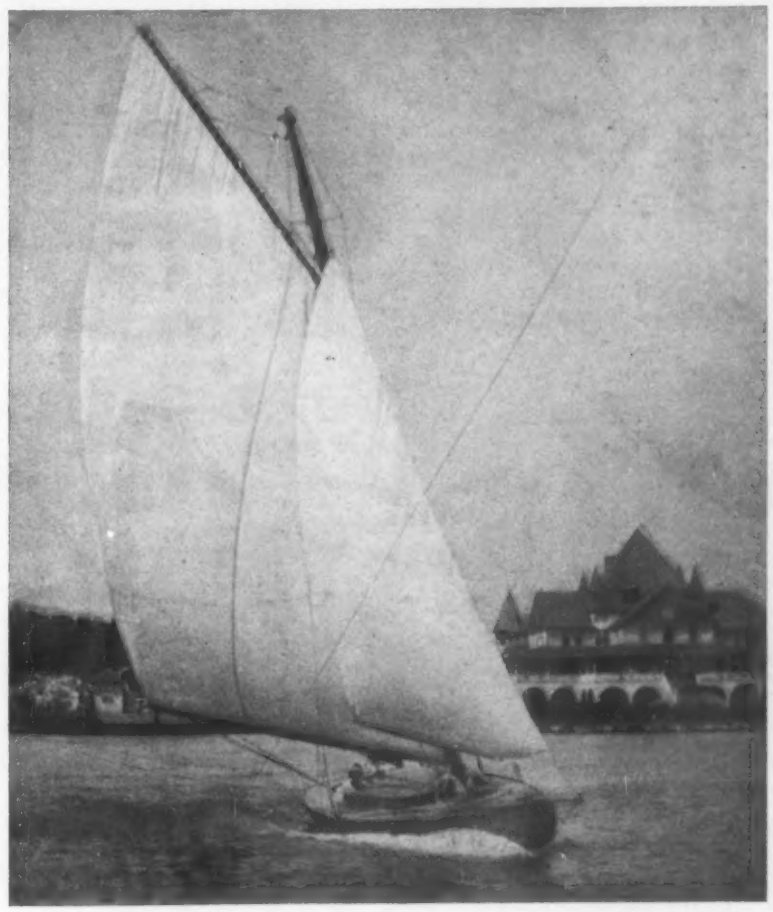
The cleats should be of 5 and 7 inches in length, respectively. A 15 to 20-foot boat should carry an anchor weighing 12 pounds; a boat of 20 to 25 feet, one of 25 pounds; while the anchor for a 25 to a 30-footer should weigh 36 pounds.

Reversing the engine was once considered a good enough method of control in the smaller-sized launch. To-day, however, the man to whom the most extreme economy is not a factor feels more confident when his boat is equipped with either a reversible propeller or a reverse gear. The reversing propeller weighs less and gives a greater range of speed than the solid wheel and reverse gear. The latter, however, is less liable to damage and rather better suited to the larger and heavier boat. It is largely a matter of preference, as both reverse gears and reverse propellers have been brought to such a high state of perfection that either will give satisfactory results.

Across Lake Michigan on a Raceabout

By FREDERIC L. BAXTER

WHEN we bought the raceabout Colleen she had two races to her credit for the Pfister Cup at Milwaukee, and a third win meant permanent possession of this fine trophy. The year previous, however, she had been beaten by a new boat brought from Long Island Sound by a member of the Milwaukee Yacht Club, and it was the general opinion that Colleen was outclassed. We decided to make a try for it, anyway, and see what she could do, as it seemed to us, from her performance during the few weeks we had owned her, that it would take a pretty fast boat to beat her. The race was to be held at Milwaukee on July Fourth, which meant for us a cruise directly across Lake Michigan from Macatawa Bay, our home port, which is nearly opposite Milwaukee, a distance of 85 miles. Colleen was not the boat we would have chosen for a trip of this kind in the open lake, as she had no watertight cockpit, though she did have a cabin trunk and doors Her cabin accommodations merely consisted of two light transoms, with no lockers or other fittings of any kind. We rigged up a grub box with a place for an alcohol stove, arranged some temporary shelves, and fixed two bunks with air mattresses and blankets. Our extra gear included a sea anchor and storm trysail.



COLLEEN LEAVING HER MOORINGS IN MACATAWA BAY.

It was Friday noon when we started, and if the day had anything to do with our luck, it certainly didn't hurt it. The light wind drew ahead soon after our start, necessitating a long and short leg to keep on our course, which was plotted on the chart as we made each tack, to keep our position as nearly accurate as possible. Late in the afternoon a car ferry passed north of us on her way to Grand Haven, showing that we were right on our course. After sunset the wind shifted and blew cold and fresh from the north, and, as it gave signs of increasing, it became evident it would be best to shorten sail before dark. So we set to work. As I hung out on the bowsprit shifting jibs, showers of ice-cold spray soaked me as she slapped into the head seas left by the westerly wind, for I had not waited to put on my oil skins. Under close-reefed mainsail and storm jib Colleen soon had all she wanted, but was making great time dead on her course. By ten o'clock the gale had settled down to a steady roar of wind directly from the north, and icy cold. The little raceabout was staggering along, and we had to ease the mainsheet more and more frequently as the puffs grew stronger. At last, when a couple of big combers came solidly over her side into the open cockpit, there was no choice left us; we had to take in sail and run for it. The mainsail came down with a flapping and banging that required some fierce fighting to subdue. Fortunately, the halyards led to the cockpit, so it was not necessary to send anyone forward in the blackness onto the wave-swept deck.

The mainsail muzzled, Colleen was headed off before it toward the southwest with the wind on her quarter, so we might make as much distance across the lake as possible. She rode easily with this rag of sail forward, quartering over the seas that rose behind her, with scarcely a drop coming aboard. It was hard to understand why she steered so easily and rode so steadily; but we finally decided that the dinghy must have capsized and was acting as a drag, although it was too dark to see whether this had happened. I had never heard of using a dinghy for a sea anchor, or much less of riding stern to a sea; but as we were lifting easily to the big combers, making something to the westward across the lake, and as the painter was a new half-inch rope, we decided to leave matters as they were. By this time we were all shivering with the cold, although we piled on all the extra sweaters, coats and oilskins we had. My wet clothes added to my enjoyment of the occasion, and we finally took to the cabin with a couple of lanterns to warm it up, leaving the skipper at the tiller. Water was sloshing around in there, and it was vilely close; but it kept out the wind. The pitching and rolling were something fearful, and, combined with the closeness of the cabin, soon produced the inevitable result. Most of us had seldom been sea-sick; I believe one of us boasted of never having been; but now we all succumbed. I went on deck about an hour later to relieve the skipper, but nearly perished with the cold and soon had to give it up. The two boys were too sick to crawl out of the cabin; so, muffled in his pea-jacket, the skipper sat at the tiller all the rest of that cold, black night, the wind screaming through the rigging and the big, white-capped hills of water looming up dimly gray behind him. Each sea looked like a mountain as it came roaring up astern, looking as if it must surely overwhelm the little craft; but each time she rose like a cork, taking nothing but spray on board. Meanwhile, we three lay huddled in the cabin, with water splashing over the floor, and didn't care enough to man the pump.

A cold, late dawn broke over a waste of gray, heaving water, rolling southward in long, regular surges, over which a little raceabout with a bit of jib was regularly rising and falling. Behind her towed a dinghy upside down.

It soon cleared, and a bright, warm sun broke out, the wind rapidly falling at the same time, which so heartened us that we set to righting the dinghy. It was a back-breaking job in that sea to get the boat on board and empty out its load of water, but

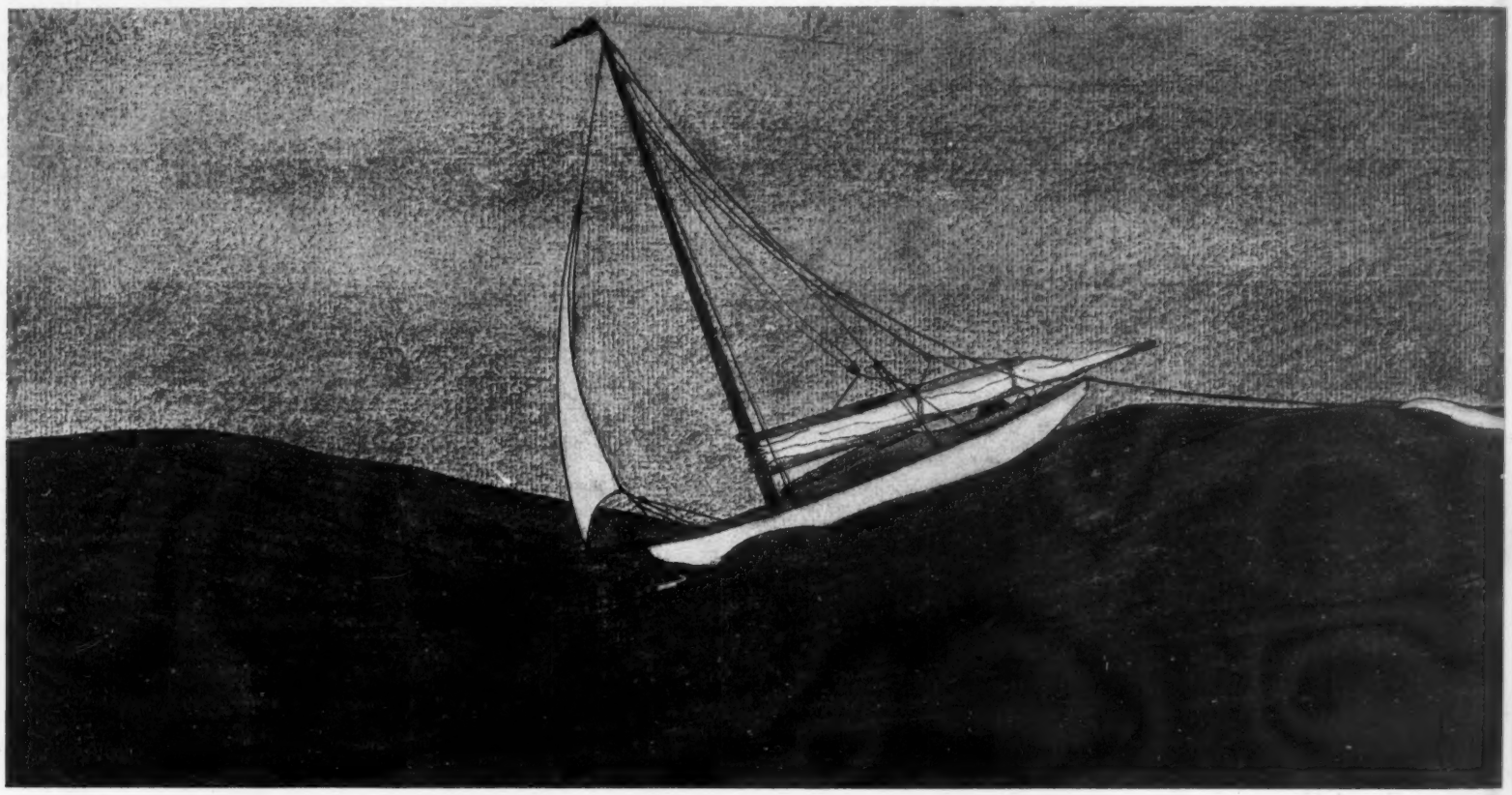
it was finally accomplished. We found the only thing missing was one oar, which had not been lashed in. Next we shifted jibs and put up the whole mainsail, under which Colleen began to skip to the westward, her easier motion soon relieving the sea-sick ones, so that we carefully consumed a little breakfast. The question now was, "Where were we?" No land was in sight, and it was impossible to calculate how far we had drifted to the south during the night.

It was finally determined to head due west until we made a landfall and found out how much below Milwaukee we were. It was not till nearly noon that land was sighted ahead, and, running rapidly up to it with a fresh wind, we soon made out a small town and a tall stone lighthouse, which, after a long study of the chart and Coast Pilot, we decided was Racine, Wis. (We had never been on this shore before.) This was 20 miles south of our destination, so we hauled up close to the wind and headed as near north as Colleen would lie. All the afternoon we beat up along the shore against a stiff northeast wind and a steep, short sea, that seemed as if it would hammer the planks out of her. There was too much wind for whole canvas; but we didn't want to stop to reef with the high buildings and stacks of Milwaukee in sight ahead, so we eased off sheets a bit and banged through it. About a mile from the breakwater the wind dropped absolutely, like a shot, and left us becalmed; so our entrance into the harbor was ignominiously made under tow of the dinghy. As four wornout, bedraggled men laboriously furled the canvas and pulled out soaked clothing and suit cases from the cabin, the club care-taker rowed out to welcome us. "Come for the race?" said he. "Glad to see you, but you don't stand any show!" "I'm —— if we don't!" answered the crew.

The next day was Sunday, which we spent at the hotel and in getting acquainted at the club, whose members we found to be the best and squarest lot of sportsmen I had ever met. We also sailed around the course, which was triangular, outside of the harbor.

The day of the race turned out cold and cloudy, with a howling northwester blowing. It looked to us like our regular weather. We were to sail against the whole fleet of raceabouts; but the only one we feared was Badger II, the boat that had beaten Colleen the previous year, and was the undisputed champion of the Milwaukee Y. C. fleet. She had been hauled up for a week, drying out and being polished, and the morning of the race she was skinned clean, without so much as an extra rope yarn aboard, although the rules required a spare anchor, riding lights, etc., to be carried in a race. We learned, also, that her owner had imported a so-called amateur skipper from the Sound to sail his boat in the race, professionals at the helm being barred by the rules. I must note here that these methods were frowned upon by the other boat-owners of the club, and there was even some sentiment among them in favor of our winning. Meeting the "amateur" skipper from the Sound, he informed us that he had had no trouble beating a sister boat of Colleen in the East.

The imported skipper evidently was not used to Lake breezes, however, for he put up a close-reefed mainsail and storm jib,



"A COLD, LATE DAWN BROKE OVER A WASTE OF GRAY, HEAVING WATER."

while we started out with two reefs and a number two jib. They had a crew of three, while we added a good, husky club member to make up the limit of five allowed, and kept them lying on the deck to windward throughout the race. Colleen's great point of sailing was windward work, and it was said that she could outsail any raceabout, or boat of her size, in beating; so we felt that if we could hold the other boats on the first two reaches we could win on the last leg to windward. Soon after the start Badger began to drop behind, and it was plain to see that she had not enough sail to keep the pace. When well behind they started to shake out the reefs in a last effort, but, in doing this, broke the peak halyards, and by the time they had them repaired were hopelessly out of the race. We rounded the last buoy in second place, and, splitting tacks with the leader—which they allowed us to do without a challenge—we soon had the lead and crossed the line four minutes and a half ahead of our nearest competitor. The next boat, in rounding-to near Colleen, gave us a rousing cheer, which we returned with interest.

That night, with the big silver cup stored away in the cabin, the three of us that were left, the skipper having gone on the steamer, set sail before a gentle northwest wind, with a full, pale moon rising ahead of us. Astern the lights of the city slowly dropped below the horizon, and the city noises gradually grew fainter, until we were enveloped in the moonlight and quiet of a calm sea, broken only by the faint swish and gurgle of water under the bows. Our course was E¼South, and it was easy to hold it, a touch of a finger being sufficient for steering. At daybreak the wind was in the same quarter, and we put up the balloon, finding Colleen would hold her course for fifteen minutes at a time with no hand on the tiller when the sails were properly trimmed. About noon we sighted the clouds that always lie over the land, and, later, dim sand hills below them; but the wind fell lighter, so that there was hardly steerageway, and continued so until sunset. At dusk, when the red gleam of Macatawa Light shone out, it was dead ahead over our bowsprit, and we were directly on our course E¼S—a pretty good landfall for an 85-mile run.

It was late at night when we made harbor, and the picture we had painted of Colleen running in between the piers lined with admiring friends, with the big cup at her masthead, was hopelessly spoiled. Only the watchman in the tower of the life-saving station called out a greeting to us.

The Race Around Long Island

THE entries for the race around Long Island are already beginning to come in, and, from the interest that has been aroused in the event, there is every prospect of a goodly number of boats appearing at the starting line off the hospitable club-house of the Atlantic Yacht Club on the morning of July 31. Mr. T. R. Goodwin, secretary of the Narragansett Bay Yacht Racing Association, writes that there will, undoubtedly, be some of the fast boats from that section in the race, and it is expected that some of the Massachusetts Bay 22 and 27-footers will come around the Cape to take part in the event.

The regatta committees of the Atlantic and New Rochelle Yacht Clubs, in drawing up the rules and conditions, have covered every point carefully and thoroughly, which should make for the success of the race, as far as the handling of it is concerned. The conditions require all boats to report at the Atlantic Yacht Club at least twenty-four hours before the start. As the facilities of the Atlantic Yacht Club station and the hospitality of its members are well known, the fleet should begin to gather in Gravesend Bay early. Lest the trip through Hell Gate and down the East River should deter any of the Sound yachtsmen, whose time may be limited, from entering, YACHTING has arranged for a tug to pick up the entrants at New Rochelle on the afternoon of Thursday, the 29th, and tow them to Gravesend Bay.

Knowledge of local conditions around Montauk and through the Gut or the Race will play an important part in the contest, but we believe the majority of the skippers in the race will be more or less familiar with those waters from having sailed in Block Island races or cruised on Gardiner's Bay. The unfamiliar part will be from Fire Island Lightship to Montauk; but, even in the event of thick weather, there should be no trouble here if the lead is kept going. With the prevailing summer winds, this part should be a broad reach or a run; but an easterly slant would make it windward work in a head sea. The class Q boat Dorothy Q negotiated this part of the course as early as the middle of May last year, and found the going very much to her liking.

The committee of the Atlantic and New Rochelle Yacht Clubs having the race in charge have reserved the right to reject any boat upon inspection which, in their opinion, is not seaworthy or suitable to go over the course. This is a wise precaution, as open or unsealed boats have no license at sea where there is 100 miles stretch, with no hole to get in in case of an emergency.

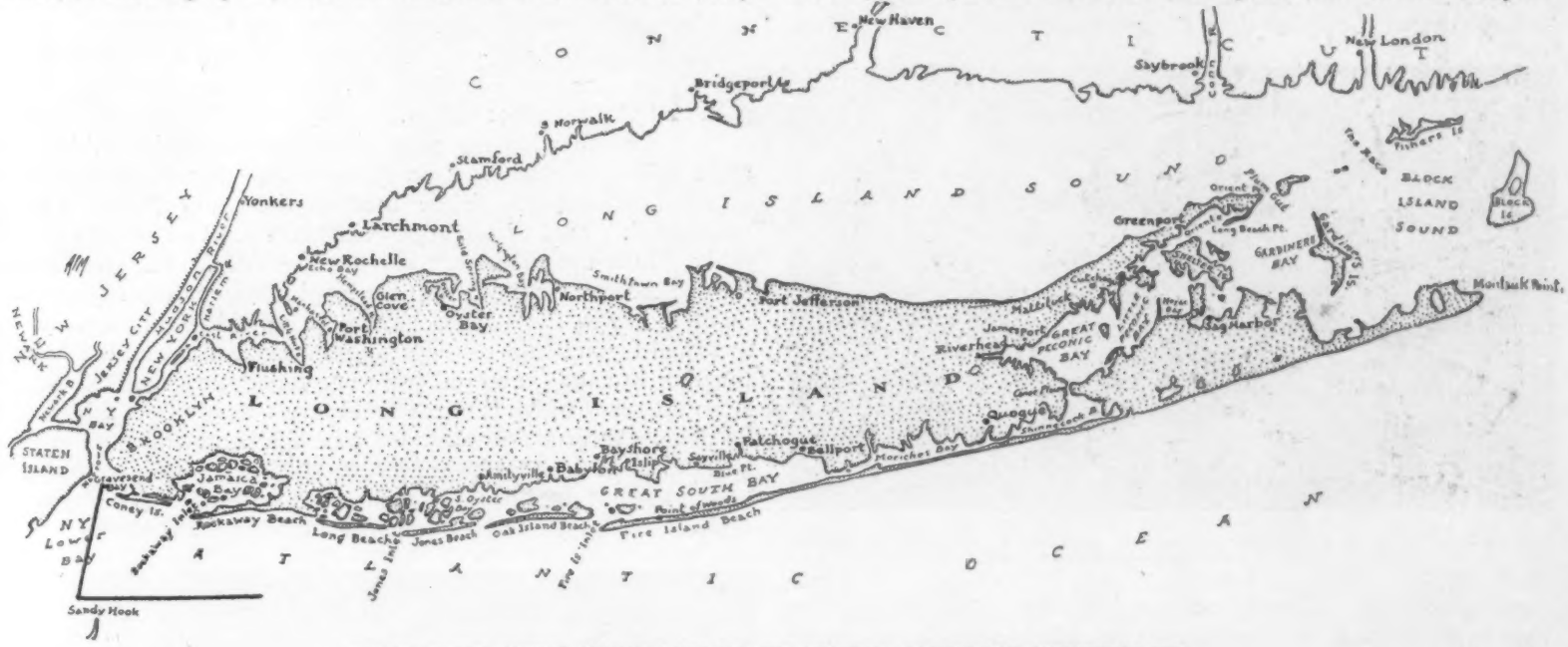


CHART OF THE COURSE AROUND LONG ISLAND, SHOWING POSITION OF SOUTHWEST SPIT.

This course has some historic interest, and has seen a number of races back in the 80's—twenty to twenty-five years ago—some for single-handers. In 1884 a number of New York Yacht Club schooners sailed a slashing match from Sandy Hook Lightship to City Island for the William Travers Cup, which was won by the famous old Grayling in 43½ hours.

The following boats have already entered: Victory, Harry Jackson, Jr.; Intrepid, Geo. P. Granbery; Newasi, Geo. W. Robinson; Snug, Daniel Bacon; Sakana, Haviland Brothers; Redwing, M. B. Pendas; Surprise, M. S. Kattenhorn; Altair, H. L. Stone; Gertrude, E. J. Cram, and Ramallah, E. H. Tucker.

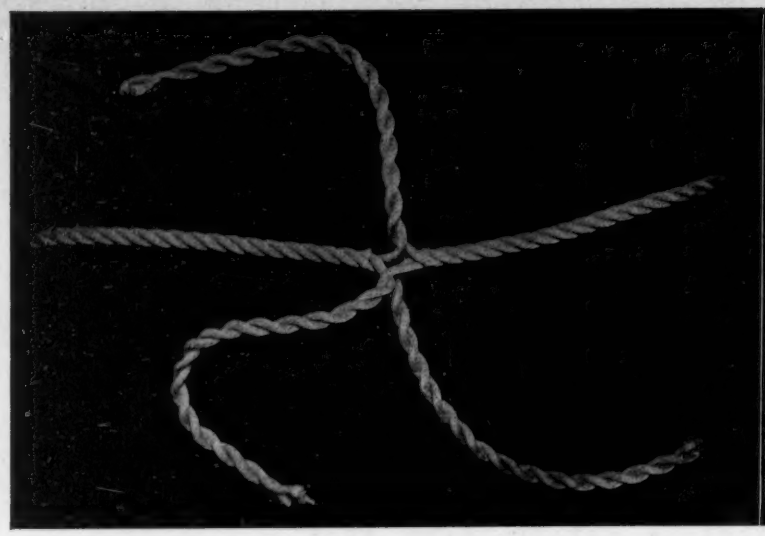


Fig. 1.—Making a long splice. Ropes unlaid and the opposite strands twisted together.

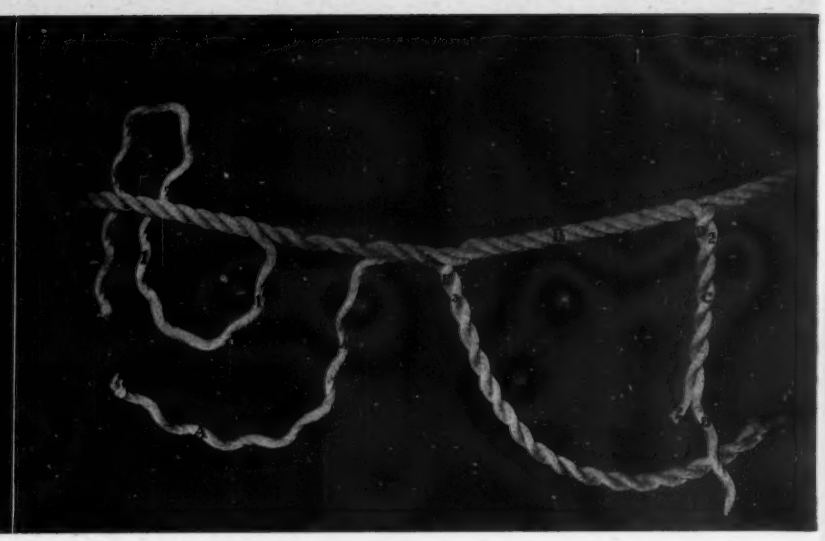


Fig. 2.—Unlaying one strand and putting the mate in its place. Right-hand pair already mated.

Lessons in Splicing

THE LONG SPLICE

By WILLIAM E. PARTRIDGE

THE long splice, though regarded with awe by the amateur sailor, is no more difficult to make than any other splice. The object of making the long splice is to join together two pieces of rope in such a manner that they will not be larger at any part of the splice than the rope itself. This allows of its

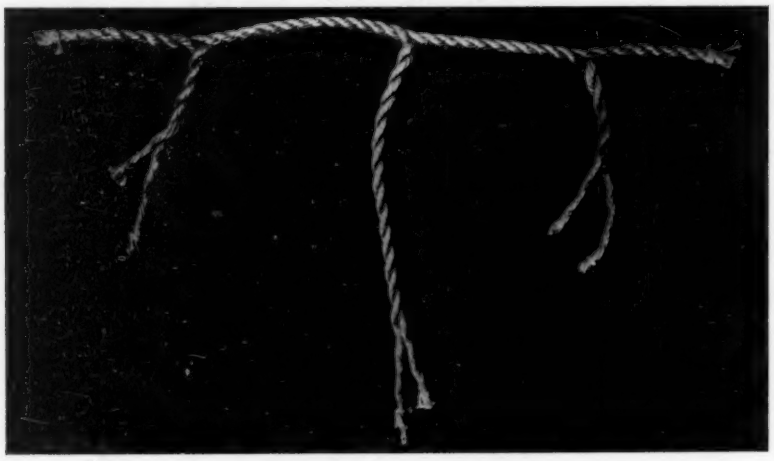


Fig. 3.—Meeting points of the strands that have been mated. They are temporarily twisted together to prevent unlaying.

running through a block without jamming. Incidentally, the long splice as made by sailors is very nearly if not quite as strong as the rope itself.

The chief difference between the common splice and the long one is that in the latter the strands do not all meet at the same point in the rope. The meeting points must in no case be less than a foot apart, while the total length may be almost unlimited, and becomes greater as the number of strands in the rope is increased. Even when making the splice as short as possible it is necessary to see that at any point in the splice there are but two strands meeting, or but one more than the rope would have naturally. As the "scores" or grooves in the rope are relatively large, there is ample space for the extra strand. It is for this reason that by halving the strands we are able to make the spliced portions no larger than the body of the rope.

We will suppose that the beginner has mastered the methods of tucking strands and tapering them, and can make a short splice with some ease. He is then ready to take up the long splice. We first decide upon the length of rope to be used in making the splice. For 1-inch rope this will be about 4 feet 6 inches or 5 feet, and other diameters will be in proportion. A ⅜-inch rope will require 18 inches or 2 feet. After one has had some experience the total length of the splice will depend on the strength wanted, the degree of taper to be given to each part, length of rope available, and various other things.

It is wise to whip the ends of the strands as in making the short splice. Untwist, or unlay, each rope for the distance required for the splice. Then interlock the strands, as in a short splice, each strand of one rope going between two strands of the other. Butt the ropes together firmly. All the six strands are now of the same length. Put a whipping around the ropes at the point to which the strands have been unlaid. This will secure them and facilitate the next operation, which is twisting the strands together in pairs—a strand from one rope going with the strand from the other which is next it. Figure 1 shows how this should be done. With a four-stranded rope the hearts must be cut off so as to come flush with each other.

The use of tarred rope in practice will be found desirable, as the strands hold their shape well and the scores interlock without

Fig. 4.—Strands tied, ready to begin tucking. The beginner now proceeds as with a short splice.

difficulty. When it is necessary to use softer ropes the strands are somewhat inclined to lose shape in the hands of a beginner, and they are not as easily fitted into the scores of the rope.

When the strands have been twisted together as shown in Figure 1, take a pair of them, say the top pair, untwist them completely, cut the left-hand whipping around the main rope and unlay the left-hand strand (1 in Figure 2) from the rope. This will leave a score, and into this score carry the right-hand strand *A, A*). This leaves this portion of the rope of the same size and strength as before. Turn or twist the strand so that it exactly fills and fits the score left by the strand that is taken out, as is shown at *B* on the right of Figure 2. Continue this until only enough of the right-hand strand (*A, A*) remains to tuck three or four times. One strand will be short and the other long, as in Figure 2 at *C*. Twist the long and short strands together and turn the rope end for end. Untwist a pair of strands as before. Unlay one of them from the rope toward the right and put the strand coming from the left into its score till we have another long and short end, as in the first instance. Figure 3 shows the rope with all the strands in place ready for tucking. The central pair of strands are of great length, while those at the right and left are made up of one short and one long strand. The short strands are of proper length to make three or four tucks and have enough to spare for handling. All the strands can now be cut to this length.

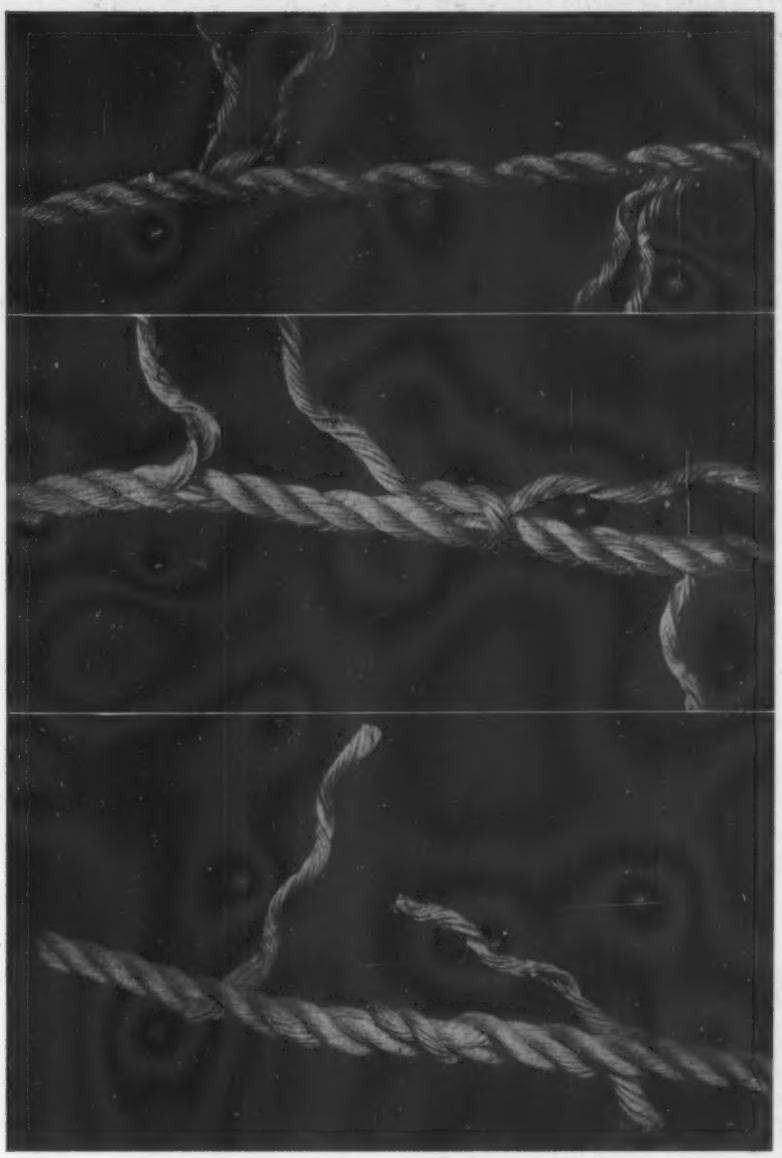


Fig. 5.—A pair of strands unlaid from the rope and split, ready for splicing.
Fig. 6.—Half of each strand laid back in place. At the meeting point they are given a half hitch.
Fig. 7.—The ends of the half strands stuck till the half of the other strand is reached. One of the three sections of the splice completed.

From this point there are three distinct methods of procedure which may be followed. The first is the easiest way, though it does not leave the splice quite as small as other parts of the rope, but gives it great strength. The second leaves all parts of the rope of uniform size, but of somewhat diminished strength. The third method not only keeps the rope of uniform size, but gives the splice great strength and more durability under strain than either of the other methods.

Following the simple method, we start with the right-hand pair of ends and untwist them. Then the two are given a half hitch or beginning of a square knot, as shown in Figure 4. After tucking or "sticking" the strands the second time cut out from the inside of each strand one-half of the yarns and tuck a third time. The directions for tucking are about the same as for finishing a short splice with the strands properly tapered. When this part of the splice is finished do not cut off the ends too close, but leave enough to be pulled into the rope by use and wear.

The two middle strands are next taken in hand and treated in the same manner. If the calculations have been made just right, the last tuckings should come within a few inches of those just made with the right-hand strands. Having finished with the center pair of strands, those at the left are tucked like the others, and, after rolling, the long splice is completed. The long splice thus made is nearly if not quite as strong as the other parts of the rope. The rope is not much enlarged, and, if care is taken, will run through a block without difficulty.

The beginner will find a four-stranded rope a little more difficult to handle. The principle, however, is precisely the same, and the only difference is that where the rope has a heart this must be cut so that the ends butt in the center of the splice.

The beginner will find the early steps in making a long splice the most difficult, and until he has mastered them he should be contented to tuck the full-sized strands. When he can do this he may be considered ready to undertake a ship-shape long splice. The steps are the same as those we have described up to the point where the strands are brought together in pairs. Taking, say, the right-hand pair, we unlay each one from the rope about three times. Then each one of these strands is split in two. Figure 5 shows the appearance of the rope at this point, where each strand has been unlaid from the meeting point for some distance and then has been split into two parts.

The next step is to lay half of each of the strands back into the

Fig. 8.—Two parts of the long splice completed and ends cut off. Shortened to get within range of the lens.

empty scores till they meet, when they have a half hitch given them, as shown in Figure 6. When this is drawn taut each end is tucked until the other part of the strand is reached. By this method of work it will be seen that the rope is no larger at any point than it was originally. There is no material anywhere which has to be forced into the scores to bring the rope to its original size. This way of making the splice reduces the strength of the rope to some extent. Just how much it is difficult to say.

In Figure 7 we have one section of our long splice in a three-stranded rope completed. These ends may be tucked and tapered. Ordinarily the sections of the splice should be much longer than this, and one should be separated from another by several complete turns.

Figure 8 shows two portions of a finished long splice. In this case it was made as short as possible, and the two portions of the splice meet in the center in order to get them within range of the lens in making the photograph.

The third method of finishing the splice, or the modification of it, was invented by a landsman, and was intended for four-stranded rope used on rope drives for machinery. It is equally good for rope that is subject to heavy strains and in constant use. This method is like the one just described up to the point where the strands are unlaid from the rope after having met and been paired. Then they are unlaid, each for three full turns, or four if the rope is three-stranded. They are then divided, laid back in place till they meet, when they are joined by a half hitch. Now the ends, instead of being "stuck" or tucked in the ordinary way, are put through the rope. This is done in such a way that the half strand which is being tucked is wound around the half strand which was laid in place. Each tucking through the rope is made to give a turn, or partial twist, of the half strand around the other until the free half strand is met which was left out. This latter strand is now split. The other strand which has been tucked is passed through it and tucked, in the usual way, if it is a three-stranded rope, or put under two strands if a four-stranded rope. The opposite strand, the end going towards the center, is treated in the same way.

This winding of the half strands about each other gives a greater amount of friction than can be produced by the other method of tucking. The split end of the strand left out is brought together, whipped, and, when cut off, is left about 4 inches in length.

The following figures may be useful in making this form of splice: In 1¾-inch, four-stranded rope the meeting points of the strands will be 3 feet apart and the splices will measure 12 feet from one end to the other. If the rope be three-stranded, 1¾-inch, the splice, when finished, will measure 9 feet over all.

The best directions for the long splice, or, in fact, for any form of splice, seem rather blind when read for the first time, especially if one has no piece of rope at hand on which to begin work. If the reader will take a bit of rope and learn the steps one by one, being sure of each before going to the next, even the last described method of splicing will not prove very difficult. The wrapping of one strand about another, which forms a part of the same rope, certainly appears a complicated matter; but if all the steps leading up to it have been mastered, there will be found no difficulty at any point.

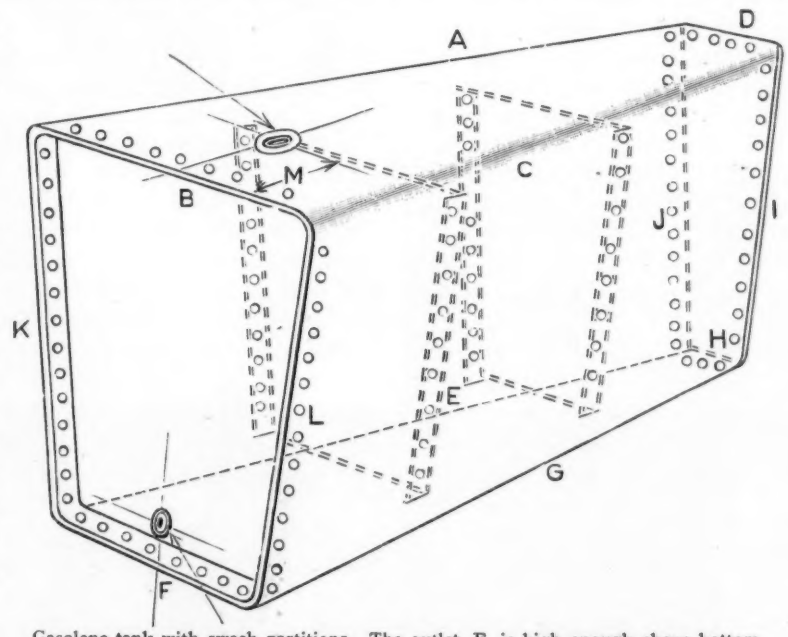
Gasolene Tanks

By K. E. TREADWELL

TO the average man, purchasing his first motor boat, a tank is a tank; and the fact that it is, nine times out of ten, carefully stowed away under the forward deck behind a more or less permanent bulkhead, precludes any undue investigation on his part. The tank may be too small, it may or may not be properly made, it may be clean internally, or quite the reverse; but, until he runs out of gasolene at an unexpected and inconvenient time, or finds his carburetor clogged with dirt, he takes it for granted that everything is as it should be. After an experience of this kind the new skipper respects the importance of his tank, and his respect increases in direct proportion to the amount of trouble he has experienced with it.

There are tanks and tanks; some of them are well built, absolutely tight, constructed of material of sufficient gage to withstand usage even harder than that to which they will be put; and finally, but by no means of the least importance, thoroughly cleaned out before being sealed up. On the other hand, there are receptacles for gasolene whose only recommendation is the matter of cheapness to the boat-builder, and that are constructed so lightly and flimsily that they are a mere apology for the purpose for which they are supposed to be used.

Such boat-builders claim that it is impossible to get from their customers, for their lower grades of boats, prices which would admit of the including in the equipment a high-grade gasolene tank. As a matter of fact, however, nine novices out of ten, if they realized the difference between a makeshift and the real thing in this part of the outfit, would a great deal rather deny themselves in some other part of their equipment, or even get a somewhat smaller craft, for the sake of having a fuel tank on which they could depend during every moment of their ownership of the boat.

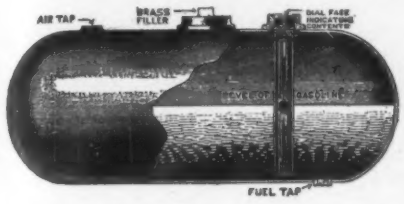


Gasolene tank with swash partitions. The outlet, F, is high enough above bottom of tank to prevent sediment being carried into carburetor. The U. S. Government ruling for inspection of gasolene tanks is that divisions in rectangular tanks shall not exceed 20 x 22 inches.

The location in which the tank is stowed governs its form. If placed in the bow, it is usually especially constructed to fit the shape of the boat, as it is when stowed in the side lockers or under the 'thwartship seats. The size of the tank depends upon two factors: the horse-power of the engine and the service to which the boat will be put. If the skipper simply uses his boat for after-

noon runs, a tank capacity which will allow him ten hours under power will, nine times out of ten, be sufficient. If, on the contrary, he intends cruising or running along shore, he must be governed by the average distances between the points of supply and the number of times he is willing to run in for more fuel.

It may be taken as a general average that for a two-cycle engine the consumption will be a pint per hour per horsepower. This means that, with a 3-horsepower engine, a four-gallon tank will hold enough for a ten-hour run without refilling. With a 5-horsepower engine a tank of 7 gallons capacity would give ten hours' cruising radius. With a 10-horsepower motor a 14-gallon tank would be required to obtain the same radius of action.



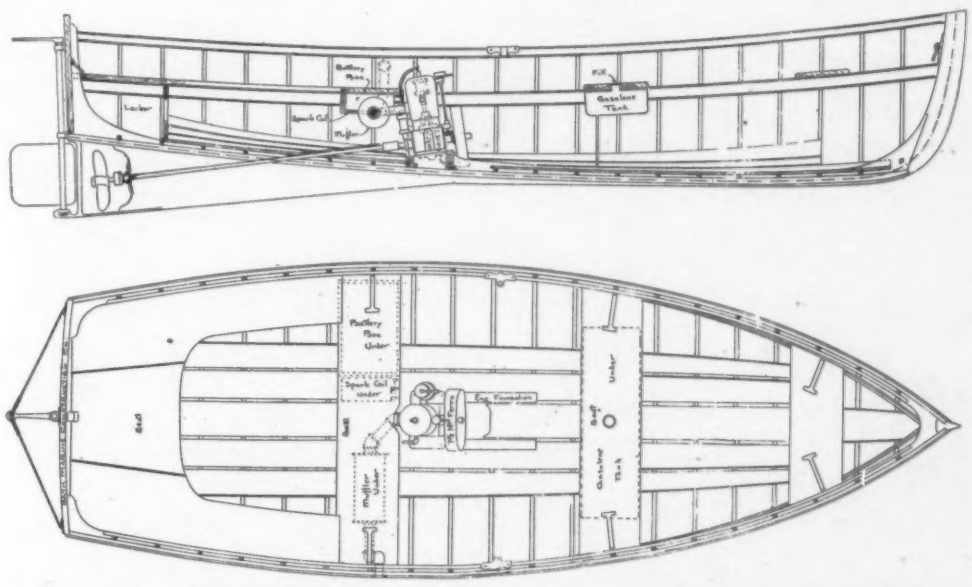
A seamless steel gasolene tank, showing air vent, filling plug outlet and measuring guage.

As a rough guide to the relation between the sizes of cylindrical tanks and their capacities, the following table will be of service:

Capacity.	Dimensions.
5 Gal.	9 ins. x 20 ins.
8 "	10 " x 20 "
10 "	12 " x 20 "
12 "	12 " x 20 "
15 "	12 " x 30 "
20 "	14 " x 30 "
24 "	14 " x 36 "
26 "	16 " x 30 "
32 "	16 " x 36 "
32 "	18 " x 30 "
40 "	18 " x 40 "
45 "	18 " x 42 "
50 "	18 " x 48 "
50 "	20 " x 40 "
65 "	20 " x 48 "
80 "	20 " x 60 "
80 "	22 " x 56 "
100 "	22 " x 60 "
100 "	24 " x 54 "
120 "	24 " x 60 "
140 "	24 " x 72 "
150 "	30 " x 48 "
180 "	30 " x 60 "
260 "	36 " x 60 "

A cylindrical tank of from 5 to 10 gallons capacity, if made of seamless drawn steel tested to 300 pounds pressure, should be of 18-gage metal; if from 10 to 50 gallons capacity, of 16-gage; from 50 to 100 gallons, of 14-gage metal. If of copper from 5 to 10, 10 to 20, 25 to 50 and 55 to 100 gallons capacity, they should be of 36, 40, 42 and 48 ounces, respectively. Every tank of more than 15 gallons capacity should be fitted with "swash" partitions. These are metal bulkheads separating the interior of the tank to prevent the gasolene from swashing around violently when the boat is in a seaway. Connections by means of holes in the bottom of the partitions allow the free circulation of the gasolene.

In the older days it was the custom to have the gasolene tank invariably in the bow of the boat. While in small craft, fitted with moderate-sized tanks, this did not make any particular difference, in larger boats, with necessarily larger fuel receptacles, the difference in the trim of the hull according to the amount of fuel in the tank not only made a great deal of difference in the boat's performance, but a full tank often caused her to bury forward in rough water. For this reason many boats of to-day are arranged to have not only their engines, but their gasolene tanks as well, placed fairly close to the boat's center of displacement. An instance of how this may be accomplished by means of a midship tank stowed under a 'thwartship seat was shown in the May issue of YACHTING in the plans of a 26-foot open boat.



Plan of a 12-foot power tender, showing how gasolene tank is carried under middle thwart. This arrangement economizes room and keeps the varying weight towards center of boat.

With the tanks in the bow, feeding the fuel by gravity is an easy matter; in some cases, however, where the effort to keep the weight well down toward the center of the boat is followed out, a system of air pressure feed of fuel is utilized. This is easily arranged for by means of a small hand pump, a few strokes of which will keep a pressure on the gasolene of about 30 pounds to the square inch. This keeps the flow of feed uniform either direct from main tank or to a small auxiliary gravity feed tank, irrespective of the height or whether or not the boat is rolling or pitching. As a matter of fact, in many cruising craft two gasolene tanks are provided, one on each side of the engine, both connected to the feed pipe, so that, no matter how the boat is rolling, one tank can always be depended on to feed properly. This is a particularly good arrangement in the case of an auxiliary where the engine is often used when the boat is heeled over somewhat.

The traditional method of ascertaining the quantity of gasolene on hand is by inserting a notched stick through the filling pipe, and noting how far up the wet mark extends. For those fastidious beings, however, who do not care to go to the trouble, or fear that the stick may be the means of conveying dirt into the carburetor—a fear not altogether out of place—various types of gasolene gages have been devised. The two most popular forms of these have dial faces protected by a glass cover, on which a hand shows the height of the gasolene in the tank. The mechanism by which the hand is revolved consists either of a float ball at the end of a lever, acting on a geared wheel on the indicating hand shaft, or of a float revolving on a spiral track which turns the hand shaft as the float rises and falls.

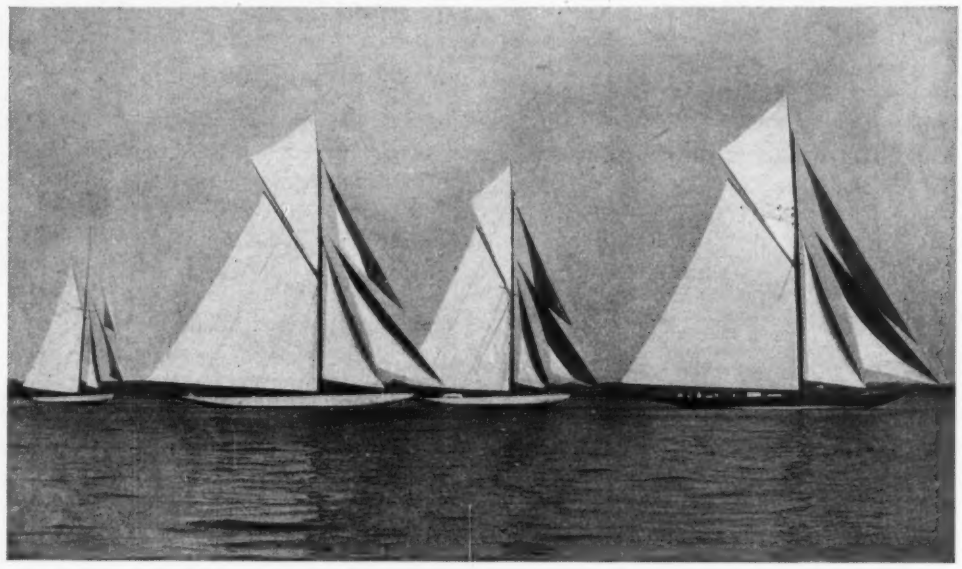
It is a well-known fact that denizens of the water front sometimes prowl among boat anchorages, extracting with a bilge pump gasolene from various fuel tanks. While the cash value of the fuel lost by any one individual owner would not often amount to very much, still the chances of a skipper who fancies that his tank is three-fourths full being badly caught when his engine stops through running out of gasolene are, to say the least, inconvenient. As a protection against this calamity, there are now made deck plates which lock. Of course, the combination of a determined pirate and a jimmy would soon put one of these deck plates out of business; but the fact of finding his deck plate shattered, on boarding his craft, would at least serve sufficient notice of the wisdom of obtaining a fresh supply before starting out. To prevent another type of larceny—the unauthorized use of the boat—a lock valve is sometimes placed in the fuel supply pipe, which effectually kills the engine by preventing the flow of gasolene until unlocked by the key that fits it.

A lock valve for supply pipe which prevents unauthorized use of boat.

English Yachting

I WAS not at Monaco this year, and was not witness, therefore, of the failure of Dixie II and Standard. People who were there, however, told me about the business, and were not sparing of the harrowing details. What puzzles me is why the boats were sent at all. No doubt they are champions in the conditions for which they were designed. They may be even all your fancy painted them in Mediterranean weather. But they are 40-foot boats, and their class at Monte Carlo was unrestricted. Wolseley-Siddeley II, and Daimler, which was to have been out but could not be finished in time, are 50-footers, and if length pays in any type of craft it pays in a high-speed motor boat. Now that your people know what the Mediterranean is like, and what the kind of boat is they may expect to meet, they will probably be dangerous rivals a year hence. But if I were in their shoes I should not be too sanguine of success. The new Wolseley engines and the new Daimler engines are sound marine jobs. A large part of their excellence is, however, that they are installed in hulls that are not merely light and strong, but of most careful design.

Mr. Sam Saunders has, in fact, developed the design and construction of motor-boat hulls so marvelously that I honestly doubt whether your people can excel his work. I do not belittle the design of Dixie, which came, I believe, from the tank in which Mr. Taylor gets so many valuable results. British naval architects think a world of Mr. Taylor, and men like Mr. Froude quote him as an authority. But tank results are not the whole story of motor-boat design or of any other expression of naval architecture. At the most, they are only good suggestions, which have to be verified or proved worthless in actual experience. Mr. Saunders has the tank results all right, and thinks a world of them; but, if I am a judge, he has in his day discarded as useless and misleading quite as many as he has successfully embodied. Some of the hulls he has produced this year are worth going a long way to see, notably that of the E. N. V., which was at Monte Carlo, with its strong-looking lattice arrangement instead of ordinary timbers.



THE 23-METRE CLASS ON THE SOLENT. WHITE HEATHER, NYRIA, BRYNHILD AND SHAMROCK.

As both of our leading clubs bar trade names, the Duke of Westminster is under the obligation of giving a new description to Wolseley-Siddeley II. Lord Howard de Walden will also have to find a pretty name for the new Daimler. Personally, I don't think much of this regulation, largely because I believe trade names convey the most useful kind of information to the observer of races. As a rule, they indicate the motor merely; but Yarrow-Napier gave a clear lead to both boatbuilder and engine-maker. However, no good can come of kicking. When the British amateur makes up his mind he would much rather lose his life than change it. I hear that the 50-foot Wolseley-Siddeley is going to Kiel in June, and will race there for a day or two. The 40-foot Wolseley-Siddeley, which you saw in America last year, has been sold to Baron von Bissing, who proposes to use her as a fast cruiser. Another cup boat, in the shape of Mr. Leopold de Rothschild's Flying Fox, is to reappear this year. A member of the Motor Yacht Club has purchased the hull, and intends to install in it a 100-horsepower Darracq driving a single screw. On the whole, our racing season is likely to be very notable for its speed results, as there is a plenitude of fast racers, hydroplanes and racing cruisers.

There is not much that is new to say about yachts, except that the actualities are not belying the promise of the earlier part of the year. As I anticipated, our class of 23-metre racing cutters is to be composed of Sir Thomas Lipton's Shamrock and Mr. Myles Kennedy's White Heather. I hear of further alterations to White Heather, which are expected to improve her speed; but I am afraid the end of the season will see her demonstrated to be more inferior than ever to Sir Thomas Lipton's boat. For one thing, it is against the older yacht that, with no third opponent to hamper him, Sycamore will be freer to deal with his friend and rival from Southampton Water. That Sir James Pender is not fitting out Brynhild is generally regretted, because both the other boats are from Mr. Fife's designs and were built at Fairlie. But the duel will be interesting, and, if accounts are to be relied on, keener even than it was last year. The international fleet of 15-metre cutters is panning out according to my forecast, and, with any luck, we should see them all in British waters in August. This was the class, it may be remembered, to which Mr. Morton Plant proposed to build. I hear that he has not exactly abandoned the intention of joining it. It is said, in fact, that a 15-metre cutter is to be built for him at Fairlie this winter. I sincerely hope the story may prove to be true.

It is a matter which most of us regret that we are not to see an American owner in the 15-metre class this summer. At one time we were counting on Mr. Morton Plant as the possessor of one of the cutters now on the stocks at Fairlie. The talk was—and it pleased us immensely—that Charlie Barr and an American crew were coming over to sail the yacht. That story Barr himself knocked on the head, and now it is announced that the boat which was presumed to be for Mr. Plant is to be raced by three well-known Thames yachtsmen—Messrs. J. R. Payne, I. Hamilton Benn and A. E. Watson.

Turner, of Rowhedge, and his crew have gone north for Mr. Burton's new 15-metre boat, which is under construction on the Clyde. Mr. Burton is an enthusiastic and skilled yacht sailor, and, if his new cutter is what she is expected to be, we may see him not far from the top of his class when the time comes for laying up again. As a fact, with these and Mariska we will be very strongly represented, and should do very well not only in home waters, but wherever sport should take us across the North Sea. Our 6-metre and 8-metre boats can hardly do quite as well; but, as the owners are good sportsmen, the racing should be interesting.

Engine Noises—What They Mean

By HERBERT L. TOWLE

THE experienced owner of a motor boat soon gets to know the normal sound of his own engine and recognizes at once any change in it. Usually a change in the regular complexity of sounds given forth by the motor betokens a derangement in some of its many moving parts. Because almost every change of sound indicates that something has gone wrong, it is highly important to recognize the significance of the new sound and be able to trace it quickly to its source. This is particularly true of any sudden change, because it almost always denotes breakage, slipping, or something of the kind. It is never due to progressive wear, which can be safely neglected a little longer.

A good deal of experience is needed to analyze the confused blend of sounds and assign each to its proper origin. The following is a general classification of the normal sounds:

A. The thud of the explosions. B. Escape of the exhaust from the ports, pipe or muffler. C. Suction at intake of carburetor. D. Clicking of inlet valves. E. Click of exhaust valves. F. Click of valve lifters against valve stems. G. Noise of cam shaft, pump or magneto gears. H. Clicking of make-and-break ignition (low-tension system only). I. Buzz of tremblers (jump spark coils only).

Some of these sounds, notably the second and third, are easily separated from the others on account of their location and distinctive quality. Others are traced with great difficulty, and sometimes only by the aid of some special device. One such device is the stethoscope, for which may be substituted a flexible phonograph speaking-tube. Another device, which is not always so satisfactory on account of the ease with which sounds are conveyed from one part to another through the mass of the engine, is an iron rod, one end of which is pressed against the engine near where the sound originates, and the other held against the teeth. Obviously all of these sounds are not clearly marked in all engines; the user has to become accustomed to his own engine. In all cases a correct understanding of the normal sounds is the first step towards recognition of the abnormal sounds, and, taking up each classification separately, I shall describe the characteristics of the normal sounds.

A. Except for the puffing of an imperfectly muffled exhaust, the thud of the explosions is usually the loudest normal sound. Its exact nature is somewhat uncertain. It may be in part purely molecular, due to the vibration of the metal itself under the shock of the explosion; probably, however, it is due in greater part to the coming together of surfaces very slightly separated. For example, the piston must be slightly smaller than the cylinder, thus introducing a minute side-slap, owing to the angularity of the connecting-rod when the explosion occurs. The wrist and crank-pin bearings, however perfectly they fit, are separated by films of oil from the wrist and crank-pins themselves, and some of this oil must be squeezed out by the explosion pressure. If the fit is imperfect, some springing probably occurs, forcing the bearings to conform more closely to the shape of the pins. The same is true of the main shaft bearings. It follows that the thud of the explosions is less marked in new, well-fitted, heavily-built engines than in light engines, or those with poorly fitting bearings. It follows also that as the bearings wear loose the thud becomes greater, till it develops into definite knocking.

B. Obviously the noise of the exhaust depends entirely on the arrangements for muffling, and need not be discussed here except to point out that a noisy exhaust makes it difficult to distinguish the mechanical sounds of the engine, and is undesirable for that reason as well as for others.

C. The suction at the carburetor intake may be inaudible if the intake is large and well screened, or it may extend to a sharp whistling in certain types of carburetors, or to a sharp puff, as in two-cycle engines of the three-port type. It has no significance as regards mechanical wear. Back puffing at the intake is caused by the inlet valves closing either too early or too late. In the former case it represents simply the rebound of the air column in the intake pipe, which if the valve were held open longer would force its way in by its own momentum. In the latter case, the valve is held open so long that the piston pumps a part of the charge back. The former effect is observed usually with mechanically operated valves whose cams are improperly shaped. The latter is most likely to occur with automatic inlet valves having springs too weak to close the valves quickly. An easy test for back puffing is to hold a bit of paper or a feather at the intake.

D. An automatic inlet valve cannot be prevented from fluttering on its seat when the engine is turning slowly, but it ought to open and close with a clearly defined movement when the engine is running at normal speed. If it flutters, the spring may be too stiff or the lift too great. An automatic inlet valve should not usually lift over three-sixteenths or one-quarter of an inch. If a mechanically-opened inlet valve is noisy, the spring is probably too weak, although cases have been known where the opposite was true, and where substituting springs of half or two-thirds the former tension not only reduced the noise, but stopped valve breakage due to hammering.

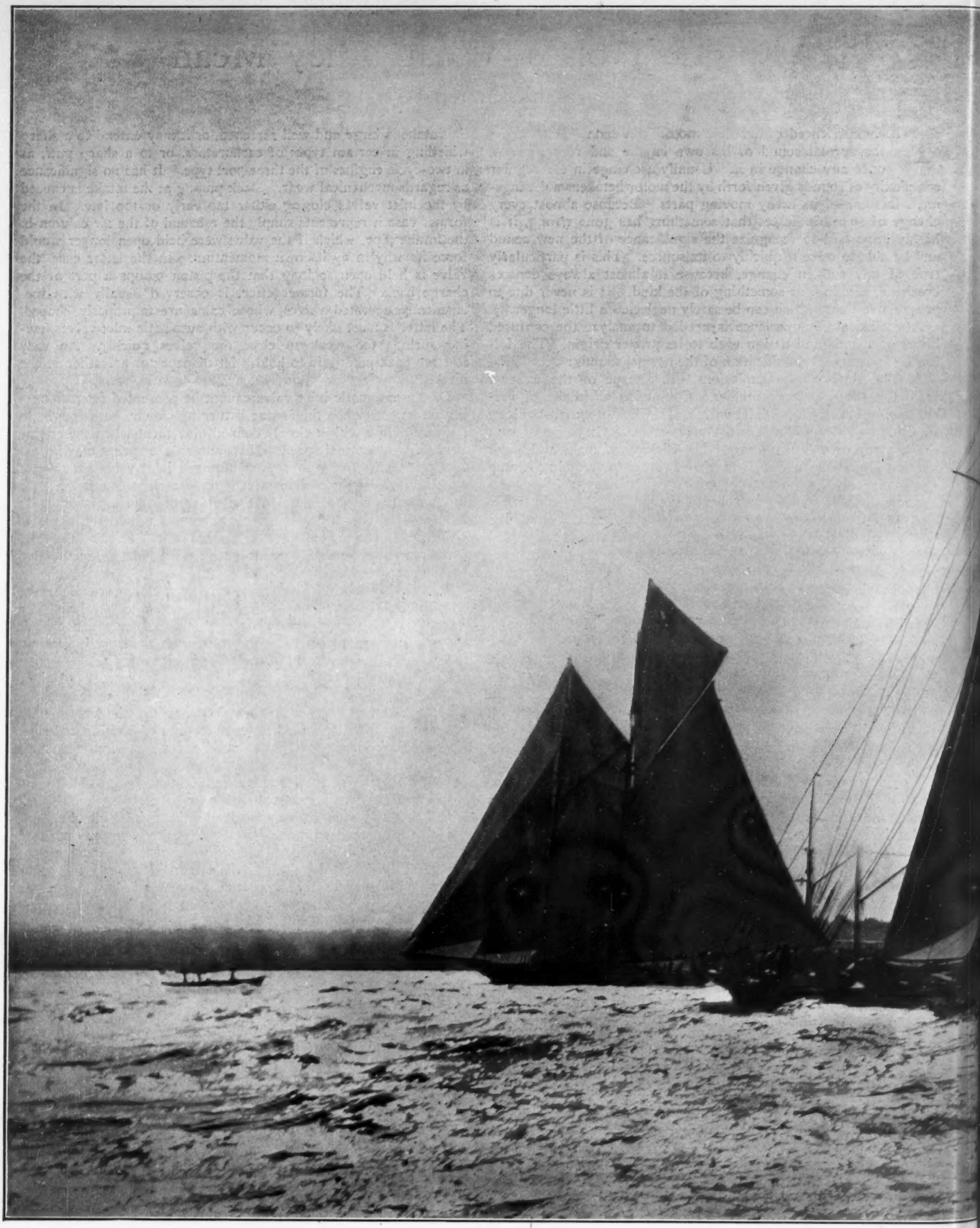
E. Clicking of the exhaust valve is practically covered by the above remarks regarding mechanically-operated inlet valves. An exhaust valve spring may weaken from heat, in which case it may fail to hold the valve to the contour of the cam on closing. This results in hammering of the valve at high speeds.

F. The smaller the clearance between the valves and their lifters, the slighter will be the clicking due to their contact. Nevertheless, it will not always do to adjust the valves with reference to this alone, as the proper amount of opening and closing is of greater importance. In adjusting, allowance must be made for possible irregularity of the cams and for expansion of the valve stems due to heat. It should always be possible to slip a thin visiting card between the lifter and the stem when the engine is hot and while the cam is turning through its idle arc.

G. In most modern motor-boat engines the gears are enclosed and run in grease or oil. Moderate wear of the gear teeth does no great harm, although to some extent it retards the valve timing. Noisy gears are, however, a great nuisance, especially as they drown the other sounds of the engine. They may sometimes be temporarily deadened by stiff grease, and it will usually pay, if they are exposed, to construct some sort of a shield for them and keep them covered with grease.

H; I. The noise of the make-and-break igniters calls for no particular comment. The sound of the tremblers should be clear, not tinny or thick. The contact screws should be adjusted for the lightest contact which gives a steady buzz.

In discussing the abnormal sounds of an engine, it must be remarked that the greater the number of cylinders, the more difficult it is to detect and trace an abnormal sound. It is not ordinarily desirable to have more than four or six cylinders. If this number be doubled or quadrupled, as in some racing boats, it is next to impossible to tell anything about the sound of an engine except for the grosser matters, such as a cylinder missing fire. In the last Harmsworth Cup race the Daimler had three engines of eight cylinders each. She was tremendously fast, but when one cylinder went dry of oil no one was any the wiser till the



A FRESHENING BREEZE—WHEN TH

MAIN-TOPMAST-STAYSAIL PARTS.

piston actually seized. The other twenty-three cylinders simply drowned the noise made by the dry cylinder.

The following list covers the principal abnormal sounds. Some of them may be inferred from what has been said above.

1. Knocking due to radically loose bearings on crankshaft, crank pins or wrist pins. 2. "End knocks" of crank or wrist-pin bearings. 3. Side-slap of loose piston. 4. Loose cam-shaft bearings. 5. Knock due to early spark. 6. Hammering due to pre-ignition. 7. Knocking of fly-wheel with loose key. 8. Clatter due to wear of minor parts, such as valve lifters or valve stems. 9. Hammering of exhaust valves, due to springs being too weak or too stiff. 10. Weak exhaust, due to obstructed exhaust pipe or muffler, or to improper valve timing. 11. Loud exhaust due to retarded spark. 12. Groaning of piston in dry cylinder. 13. Hissing due to leaks. 14. Skipped explosions. 15. Clicking due to broken piston ring.

Bearing knocks, as a class, have certain characteristics by which they are easily recognized. The sound is that of a muffled metallic knock, not resonant, but more like a hammer on a block of soft copper. Looseness in the minor bearings of the engine, such as the cam shaftings, the pump and magneto bearings, etc., will often produce the same sort of knock. In the following paragraph the processes of locating and correcting knocks are taken up:

1. If the knock proceeds from a wrist or crank-pin bearing it will occur only with the explosions. The cylinder may, therefore, be located, if the engine has three cylinders or more, by cutting out the spark from one cylinder at a time till the knock ceases. If the cylinder farthest from the fly-wheel is knocking, the looseness may be in the main end shaft bearing. Looseness in the fly-wheel bearing will not produce knocking, as the fly-wheel holds the shaft down. In the intermediate shaft bearings knocking will occur with each explosion in both the adjacent cylinders. A knock in the main shaft bearings should not be neglected, as the constant springing of the shaft is liable to break it. To detect looseness in the crank-pin bearing, set the crank at about half stroke and rock the fly-wheel gently while feeling the rod end. If this shows no looseness, the trouble may be in the wrist-pin bearing, or it may be an "end knock."

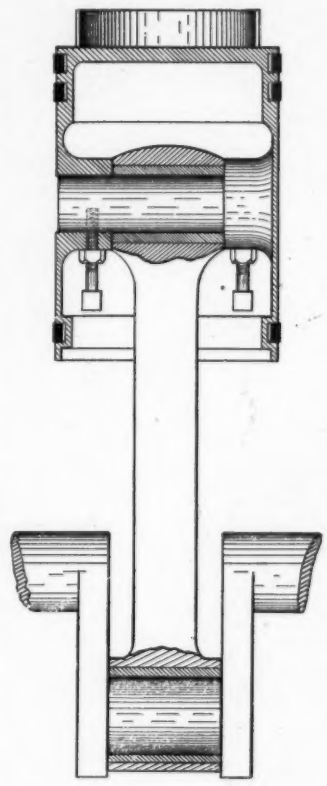


DIAGRAM SHOWING PISTON, WRIST AND CRANK PINS, WHERE LOOSE OR WORN BEARINGS WILL PRODUCE KNOCKING.

2. If the wrist pin and crank pin are not truly parallel when the explosion occurs, or if the ends of the connecting-rod are offset, or if the rod itself is light and springy, the upper and lower ends of the rod may be driven in opposite directions on their pins till whatever fore-and-aft play that exists is taken up. This may produce a sharp knocking, and it results in the bearings becoming slightly bell-mouthed. There is usually no remedy for this condition except to fit the bearings as accurately as conditions will permit and take up the end play by sweating cheeks on the ends of the bushings. This is a job for a careful workman. Occasionally the trouble may be cured by taking ont the piston and giving it and the wrist pin a half-turn.

3. A loose piston will betray itself by leakage of the compression, particularly of the crank case compression in a two-cycle engine, before the side slap becomes troublesome. Obviously the cure is a new piston. Before fitting it the cylinder should be carefully calipered at different points to make sure it has not worn oval or barrel-shaped. If it has, it must be ground true or rebored and a piston made to fit it. The proper allowance for piston fit is about 6/10000 of an inch per inch of diameter; 1/1000 is not bad, but twice that should condemn the piston. The piston head should be this much smaller than the cylinder on account of its expansion from heat.

4. Knocking may occur between the cam shaft and its bushing, or the bushing itself may be poorly fitted in its seat. To locate, use a stick or tube. Sometimes an electric flashlight, or simply holding the finger at the right spot, is sufficient. The effect of any wear whatever in the valve gear is to retard the opening and hasten the closing of the valves, and to reduce the lift.

5. Knocking due to a late spark may occur in one cylinder or several, and is usually due either to imperfect timing of make-and-break igniters or to wobbling of the timer if jump spark is used. Sometimes wear of the timer segments will produce this result. The timing is easily investigated by marking the fly-wheel and turning it slowly till the spark occurs. The knocking due to a late spark is not always easy to distinguish from that of a slightly loose bearing, and the best way to make sure is to verify the timing. It may be found that one cylinder is later than all the others.

6. Hammering due to pre-ignition has a sharp, metallic ring, almost as of a hammer on an anvil. It is a perfectly unmistakable sound if actual pre-ignition occurs. It is not heard with a cold engine, or when running on reduced throttle. Opening the throttle suddenly when running slowly produces it immediately. The cylinder affected is likely to continue firing after the spark is shut off. Pre-ignition is usually caused by deposits of carbon on the piston head from inferior or excessive cylinder oil. Occasionally inwardly-projecting metal points neglected by the builder are to blame, or sometimes hot wires or other small parts of the spark plug or igniter, particularly if the engine is run with retarded ignition or overrich mixture. Frequently the carbon deposit on the piston may be just hot enough to accelerate greatly the rate of combustion after the spark occurs, with the effect of making the sound of the explosion much sharper in that cylinder than in others, although actual pre-ignition does not occur. In most engines the piston head may be scraped without dismounting the cylinders by removing the cylinder head, or by inserting properly forged scrapers of soft steel rod through the spark-plug holes or other openings into the piston chamber. The débris may usually be removed through the opening over the exhaust valve. It is important to make a thorough job and not leave any loose fragments of carbon, as these, by becoming hot, will make things worse than before. A miniature battery lamp and a flat dentist's mirror are very useful tools in this connection.

7. A fly-wheel loose on its key will knock loudly once or twice for every explosion. The key may be found to have slipped partly out or to be loose. Fitting a key properly is a job for a good machinist.

8. See paragraph four. Test the side play of valve lifters by shaking them. A certain amount of noise from this source is inevitable in old engines. If the valve stems are loose, new guides are desirable, if the guides are separate from the cylinder castings, which is not always the case. Occasionally a knock may be traced to the pump or magneto mechanism. In the latter it is serious, and should be corrected at once, for fear of putting the magneto out of business.

9. See paragraph E above. If the springs appear to be slack, try putting washers under them to increase their tension. Turn the engine over slowly and make sure that these washers do not close the spring coils absolutely tight on each other, as this would

break the valve stems or keys and cause considerable trouble.

10. If the exhaust is suspiciously weak, disconnect the muffler or exhaust pipe and note whether there is an improvement in the power of the engine. Some mufflers can be cleaned out, others cannot. A suitable valve timing for most engines is as follows: exhaust valves open with cranks forty degrees above the bottom centers and ten degrees past the top centers. Inlet valves open with cranks fifteen degrees past the top centers and close twenty degrees past the bottom centers.

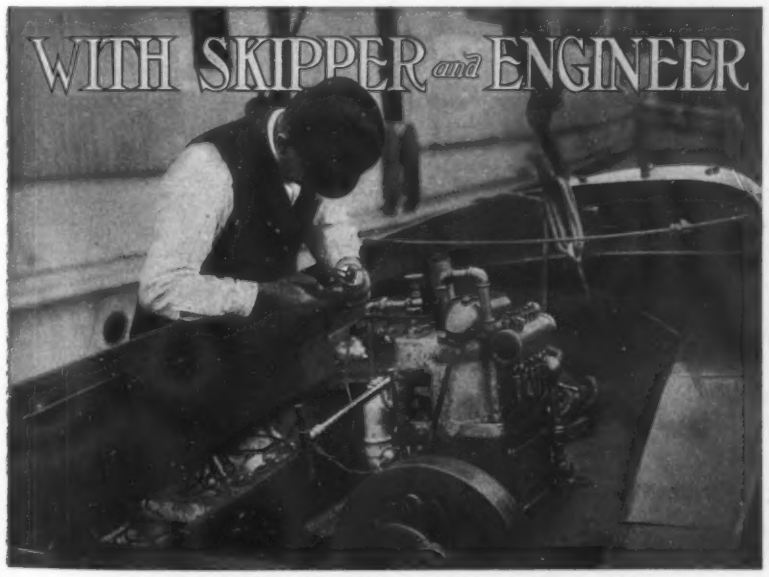
11. If the spark is late in a particular cylinder the exhaust will be louder for that cylinder, but the sound of the explosion itself will be weaker.

12. Lack of oil on the piston is betrayed by a certain "dry" or groaning sound, which should be the signal for an instant stop and a generous supply of oil. The oil may be introduced to the crank case if the connecting-rods dip into it. Sometimes it may be necessary to inject it on top of the piston and let it work down; but this is undesirable on account of the smoking which ensues on starting. If the piston is fed by a separate oil pipe, extra oil may be introduced in that way.

13. External leakage may occur at the cylinder head packing, around the spark plugs or igniter plates, and at other points easily found. A squirt of oil on the suspected spot will show a leak.

14. This calls for no comment. Investigation of the spark-plug trembler or igniter and of the wiring will disclose the fault.

15. A broken piston ring will show itself by a sudden loss of compression, and usually by a certain clicking also. If the engine is oiled by splash from the crank case, oil is likely to work up past the broken ring in undesirable quantities.



Comparative Values of Two and Three Bladed Propellers

SOME months ago there appeared in this department a paragraph concerning propellers which has called forth some inquiries, and which is a subject that might bear amplification.

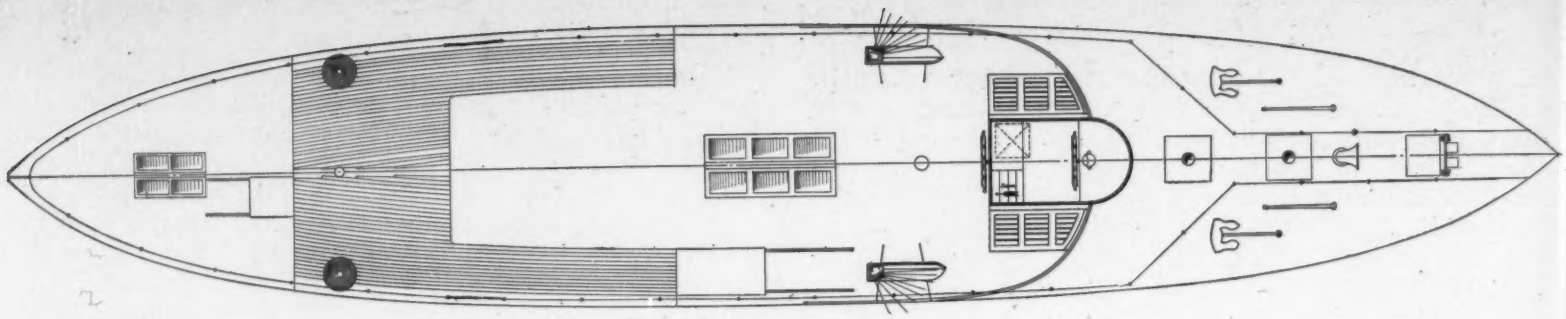
Much difference of opinion exists as to the relative values of two and three-bladed wheels among those that have used them, and it is hard to convince a man that has obtained good results with one type that the other type is just as good. Personally, we believe that, with properly designed wheels, there is little difference in power. The mistake is often made in thinking that either a two or three-bladed wheel of the same diameter and pitch, and that differ only in the number of blades, will give the same results when attached to the same outfit. This, of course, is not so; but a two-bladed wheel properly designed and of the correct size would probably do as well on a good motor of moderate speed as a three-bladed wheel designed for the same outfit. The principal advantage obtained from a three-bladed wheel is that it will drive the boat with less vibration than the other kind, on account of the more even distribution of weight on the wheel. With the shaft slightly raking, as is usually the case, there is a certain point where each blade, rising toward the surface, has a minimum thrust. This thrust increases as the blade turns, until a point is reached directly opposite to this minimum point, where the maximum thrust is obtained.

Now it is obvious that in the two-bladed wheel these points of maximum and minimum occur at the same instance, so that one blade of the wheel is always giving considerable more thrust than the one on the other side; but in the three-bladed wheel these maximum and minimum points of thrust are not opposite each other, and thus the forces and weight which the wheel carries are more perfectly balanced than in a two-bladed wheel. This has been very thoroughly proven in many experiments where the results were carefully measured and data obtained which is used by all manufacturers and designers of propellers. It would seem, therefore, as we said in the other article referred to, that the diameter, pitch and area of a wheel properly designed for the speed and load which they are to carry are the vital things, and not the number of blades or their shapes.

The Effect of Sediment on Bearings

SOMETIMES a motor boat or engine will come to grief from the most unexpected causes, and nothing would probably be more surprising to most persons than the statement that muddy water at one time so effectually stopped a launch that a whole day was required to get the craft in running condition again. The trouble was not caused by sediment clogging the circulating system, as the rotary pump in use on this motor was capable of pumping almost anything from molasses to sand.

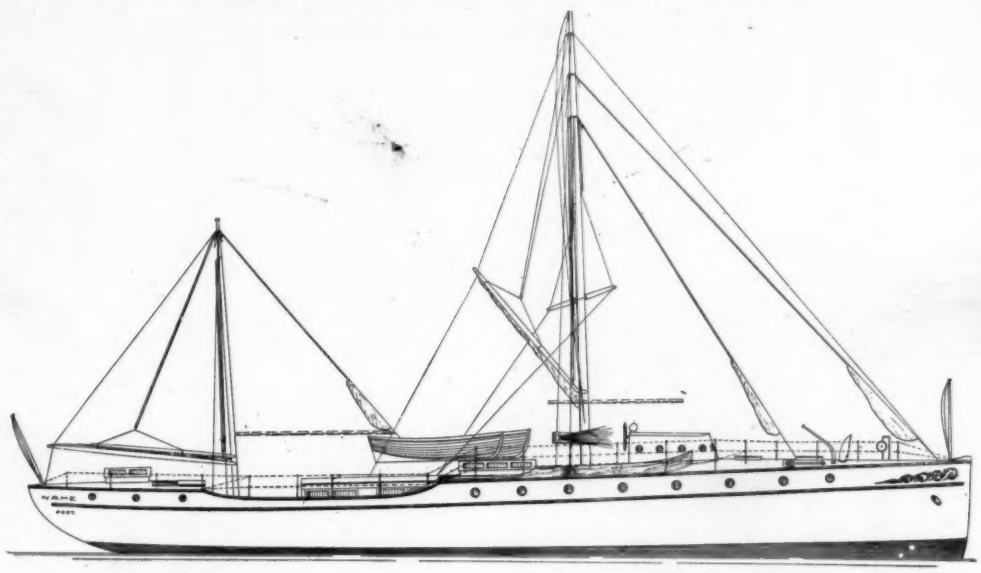
The boat and engine were new and both had had a good day's tryout on the water and had given the best of satisfaction. Over night the launch was anchored in a small bay, and during that time a strong wind succeeded in so disturbing the usually placid surface that the bottom was "kicked" up and the water made roily. Nothing was thought of this the next morning, however, and the engine ran as well as ever—for a short distance—and then gradually slowed down and stopped. It was finally started again, gave a few turns, and then stopped dead, and no amount of strength applied at the flywheel succeeded in turning it in either direction. The shaft was uncoupled from the motor and the flywheel could then be easily turned, thus showing that the trouble did not lie in the engine. The boat was finally towed to a dry dock, the stern raised out of water, and yet to all appearances the shaft, wheel, hanger and bearing were all in normal condition. It was decided that the trouble must lie in the bearing which supports the shaft between the wheel and the stuffing box, and when this was finally removed, a peculiar condition of affairs was found. The inner surface of the brass bearing had been pulverized and ground, while the brass sleeve which surrounded the shaft had been "chewed" nearly through its entire thickness. The cause was as simple as the result was disastrous—a few small grains of sand had lodged on the shaft at the hanger, and when the motor was started, these particles had gradually worked their way into the bearing, where it was only a question of time before they had succeeded in grinding the brass to such an extent that the shaft was jammed and wedged in its bearing until it was impossible to turn it in either direction. Of course this does not mean that every time a motor boat is left in muddy water the same thing will occur, but it does show from what unexpected sources some accidents will spring.



A 69-Foot Sea-Going Cruiser

THE plans that we show herewith are of a 69-foot, raised-deck cruiser designed for Mr. Willoughby H. Stuart, Jr., of Swampscott, Mass., by Whittelsey & Whitaker, of New York City.

The general dimensions of this boat are 69 feet 9 inches over all, 13 feet 1 inch beam, and 5 feet 3 inches draft. It has been the aim in this craft to develop a form that would be seaworthy and able under the most severe conditions of weather. The design of the hull shows a prominent flare at the bow, considerable depth amidship and a slight cutting away of the keel aft, which should make her an easy boat in a seaway. The general layout of the deck is similar to the raised deck type, developed by the designers several years ago. Forward, over the engine room, is an inside wheel house, which will be used in disagreeable weather.



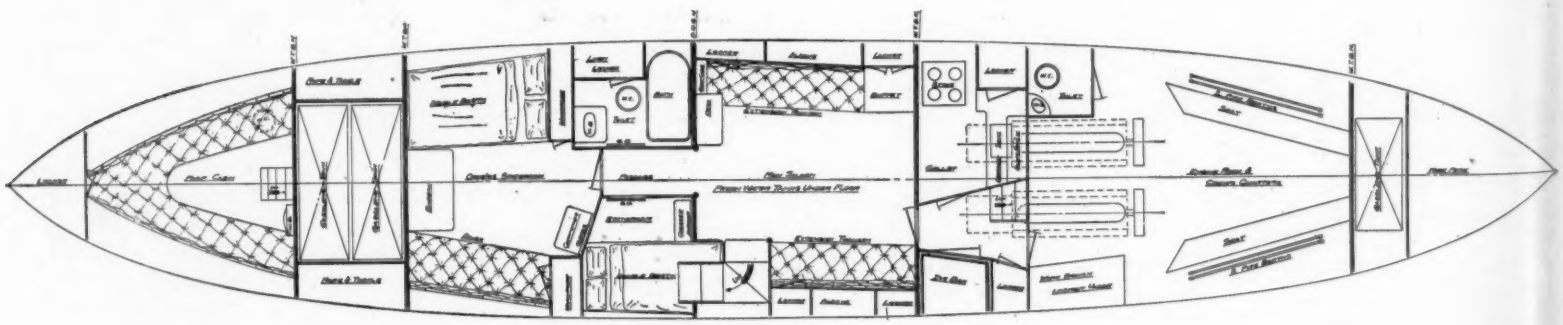
The interior arrangement shows the engine room and crew's quarters forward, measuring 14½ feet in length; next aft is located the galley, 5 feet long, running the full width of the boat, while the main saloon is a 10-foot compartment directly amidships. Aft of the main saloon is the toilet, on the port side, and a guests' stateroom, measuring 5 by 6½ feet, to starboard, with the owner's stateroom further aft, extending the full width of the vessel, and being 9 feet long. The after cabin is somewhat of an innovation, and it will undoubtedly be found very handy, and will serve to protect the main deck somewhat when running before a heavy following sea. It is furnished with two extension berths and all conveniences, making quite a commodious stateroom. There will be a storm sail rig, which will be valuable in steadying her in heavy weather or in the event of the machinery becoming disabled. There are three watertight bulkheads and two reinforced bulkheads, which will add considerable strength, and, with five sets of keelsons, the vessel will undoubtedly be most rigid. The gasolene tanks are located beneath the main deck aft, with outboard connection to the machinery, and are set in a copper pan which drains overboard.

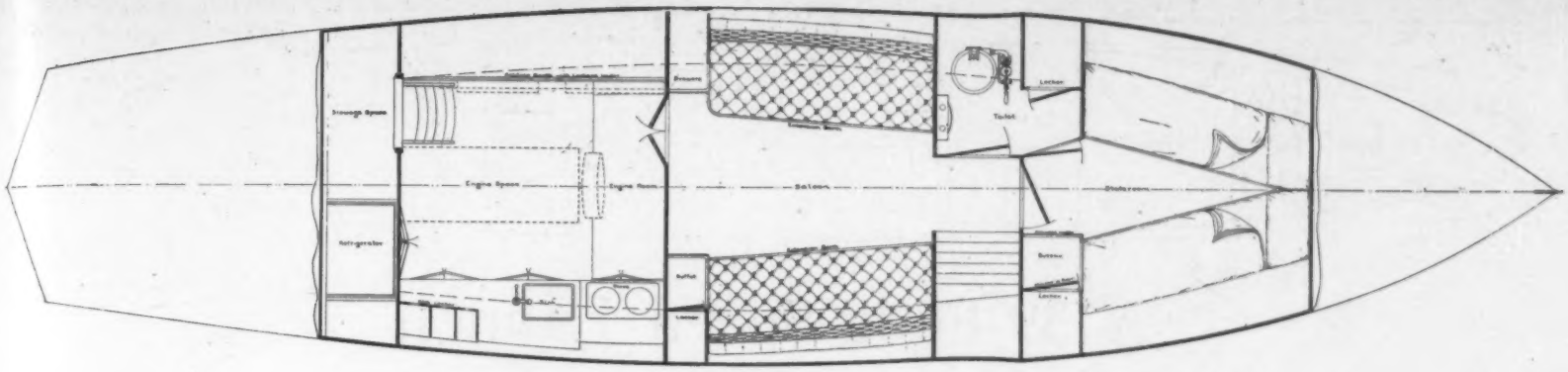
The hull will be very heavily built and copper-riveted throughout. The machinery will consist of two 6-cylinder, 40-horsepower Standard engines, which are expected to give her a speed of 15 miles per hour. Her crew will consist of four men, and includes captain, engineer, steward and cook. The lighting throughout will be by electricity.

The manner in which her deck space is laid out shows a well-planned scheme on the part of her designers, and it is so arranged that it will be unnecessary for one to remain below in any but the roughest kind of weather. The forward portion of her upper deck is well guarded by railings, which allows the crew to handle the ground tackle with convenience and safety. The wheel house forms a protection in head seas to the occupants of the after portion of this deck, and a substantial coaming, starting at the wheel house and brought out to the sides, further contributes to dryness aft.

Even in such rough weather as might render the upper deck uncomfortable for passengers' use, the lower main deck, being well sheltered, would be available in any but the severest blow.

For a coastwise cruiser, in which one could go comfortably and safely from Nova Scotia to Florida, she is one of the best designed boats we have ever seen.



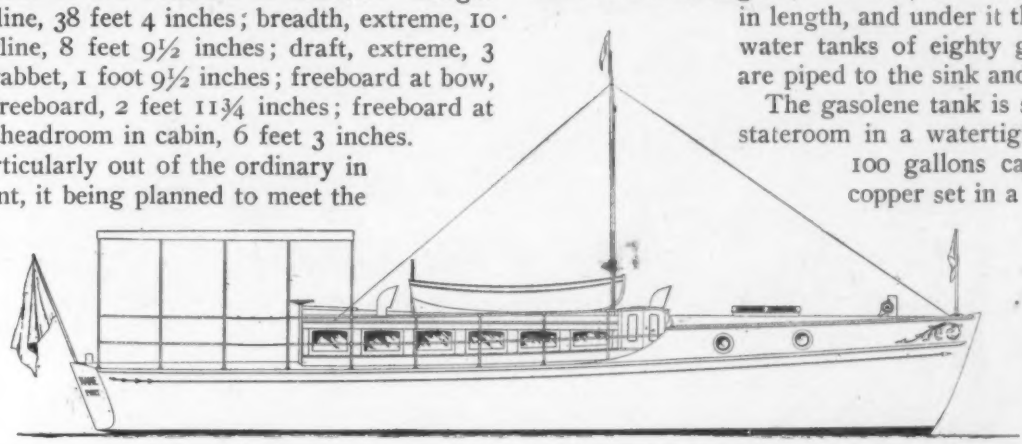


Leonora—A 43-Foot Cruiser

THE accompanying plans show the arrangement and general appearance of the cabin cruising launch Leonora, designed and built by Frederic S. Nock, of East Greenwich, R. I., for Mr. John Atkins, of New York.

The general dimensions of this boat are as follows: Length over all, 43 feet; waterline, 38 feet 4 inches; breadth, extreme, 10 feet; breadth at waterline, 8 feet 9½ inches; draft, extreme, 3 feet 2 inches; draft to rabbet, 1 foot 9½ inches; freeboard at bow, 5 feet 7 inches; least freeboard, 2 feet 11¾ inches; freeboard at stern, 3 feet 4 inches; headroom in cabin, 6 feet 3 inches.

There is nothing particularly out of the ordinary in the interior arrangement, it being planned to meet the special requirements of the owner. Forward there is a stateroom with two built-in berths, dresser and lockers. The stateroom is finished in white enamel with mahogany trim. On the port side there is a toilet room, with entrance from the stateroom as well as from the steerage, and in it there is a large locker for the stowage of linen. Opposite, on the starboard side, is the forward companionway. On a boat of this size such an arrangement is very handy, as it enables one to enter the stateroom or saloon without passing through the engine room.



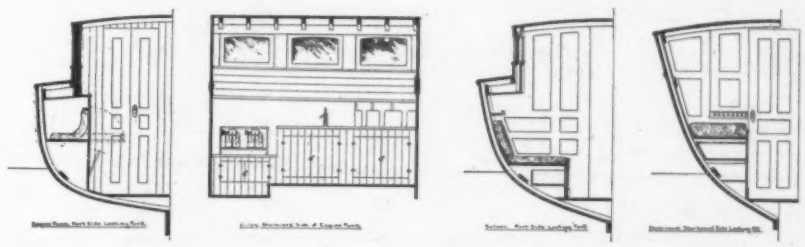
The saloon is fitted with two extension transoms, and the berths, when made up for the night, will comfortably accommodate four persons. At the after end of the saloon there is a sideboard and buffet on the starboard side, and on the opposite side a chest of drawers. An extension table will be fitted in the center, and so arranged that it can readily be removed and stored away.

The engine room is 7 feet 4 inches in length, and the starboard side is fitted up for use as a galley, with stove, sink, dish and provision lockers, while under the after deck is a large ice-box.

The port side is fitted with a folding berth 30 inches in width, with convenient locker room below; and under the after deck, back of the companion steps, there is ample stowage space for cans of lubricating oil, kerosene, etc. The after deck is 11 feet in length, and under it there are two cylindrical water tanks of eighty gallons capacity, which are piped to the sink and lavatory.

The gasolene tank is situated forward of the stateroom in a watertight bulkhead, and is of 100 gallons capacity, being made of copper set in a pan and arranged with scuppers to drain just below the waterline. The supply pipe will be run through a larger size of pipe from the tank to the outside of the hull, and from there will be fastened to the garboard, leading through the plank close to the carburetor of engine, which is an 18-horsepower, 3-cylinder Standard.

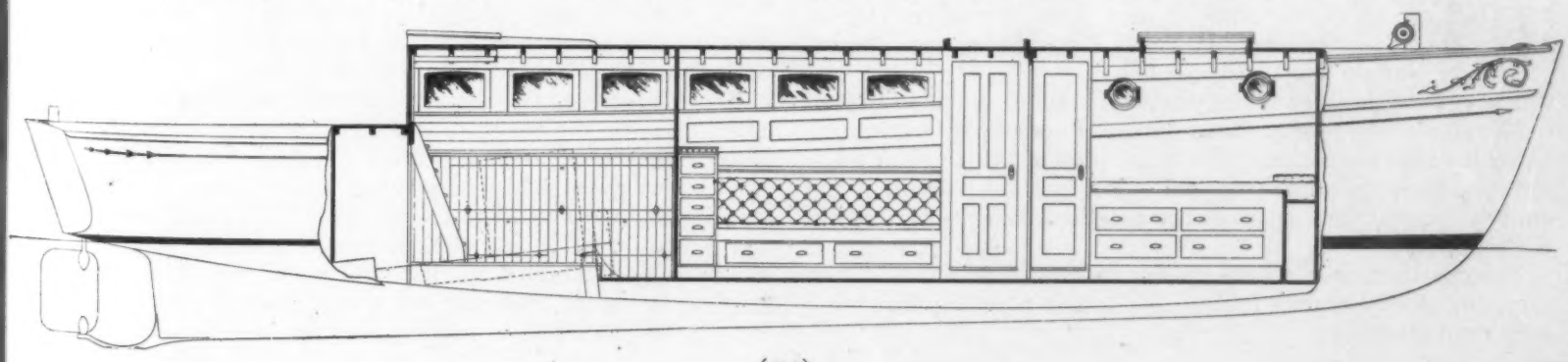
Considerable care has been taken in the design in order to provide all the comfort possible in a boat of this size, and at the same time the general appearance of the craft is most pleasing to the eye, the railing, awning, tender on davits, military mast, etc., all harmonizing and tending to improve the appearance of the boat.

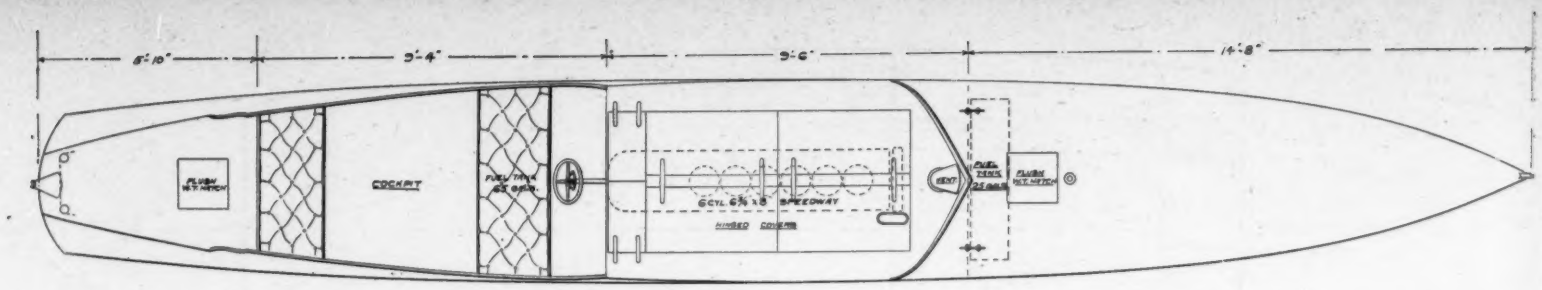


The general finish of the interior is oak, the saloon being finished in paneled oak and the engine room in oak staving. Good ventilation is assured.

The general finish of the exterior of the hull, sides of trunk, sash, companionways, slides, etc., is mahogany

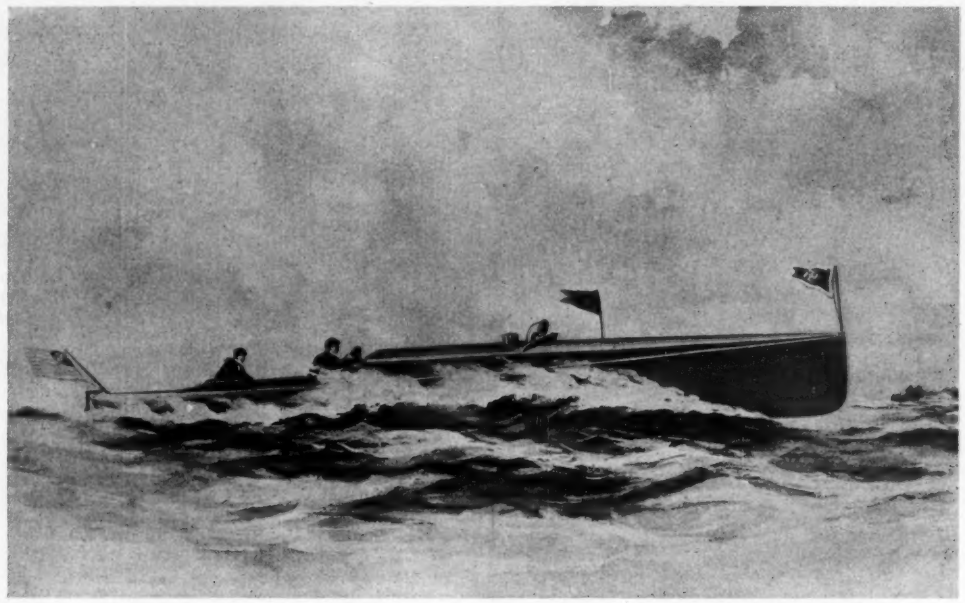
The upholstery in saloon, draperies and window curtains are green, of a suitable shade to harmonize with the woodwork.





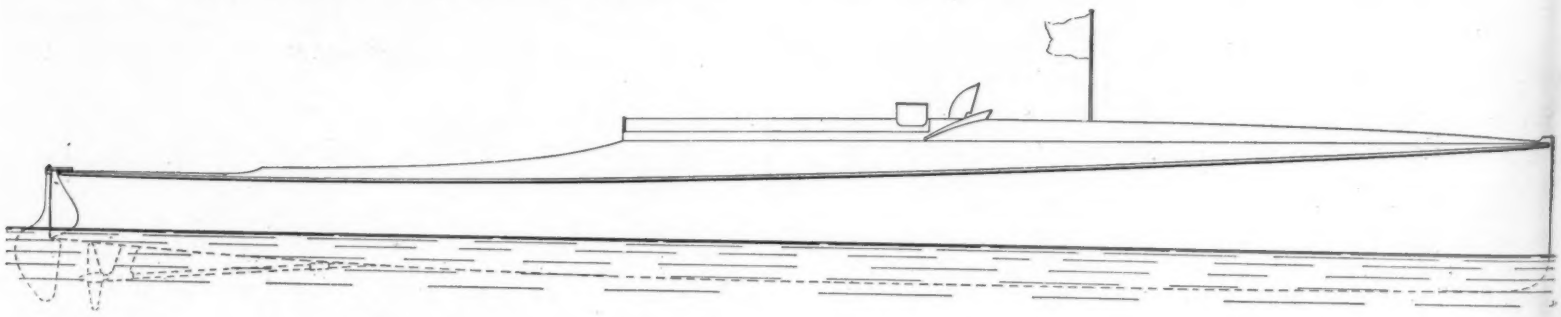
A 39-Foot Speed Launch

THE latest addition to the speed-boat fleet is a rakish-looking craft designed and built by the Gas Engine & Power Company and Charles L. Seabury & Co., Consolidated, Morris Heights, New York City, for Mr. Ralph E. Slaven. This boat will be 39 feet 4 inches in length over all, 5 feet 4 inches beam, and the motive power will consist of a 6-cylinder, 6¾" x 8" specially designed Speedway engine, built on stanchions with aluminum base, with which the builders guarantee a speed of 28 miles per hour. As a similar craft from the same yard and boards developed 30½ miles, it is more than probable that the guaranteed speed will be exceeded by a considerable margin. The engine will be arranged with a double ignition system—a high-tension jump spark and Bosch plug system. All controls are gathered together at the steering wheel, so that it will be a one-man control boat. The hull is planked with teak below and with Spanish cedar above the waterline. Decks and motor compartment hatch coverings are also of Spanish cedar. The entire hull, both inside and out, will be finished bright. There are two fuel tanks, one of 25 gallons just forward of the engine compartment, and a larger one of 65 gallons capacity under the steersman's seat, which will enable her to carry an ample supply of gasolene for fairly long runs.



39-FOOT TEAKWOOD SPEED LAUNCH FOR MR. RALPH E. SLAVEN, WHICH IS EXPECTED TO HAVE A SPEED OF OVER 28 MILES AN HOUR.

The cockpit is fairly large for a boat of this type, with comfortable 'thwartship seats, a feature which is usually neglected in a boat designed solely for speed.



A 22-Foot Waterline Racing Sloop

THE accompanying plans show a 22-foot waterline racing boat designed by J. F. Small for Mr. Harry G. Smith, of Buffalo, N. Y.

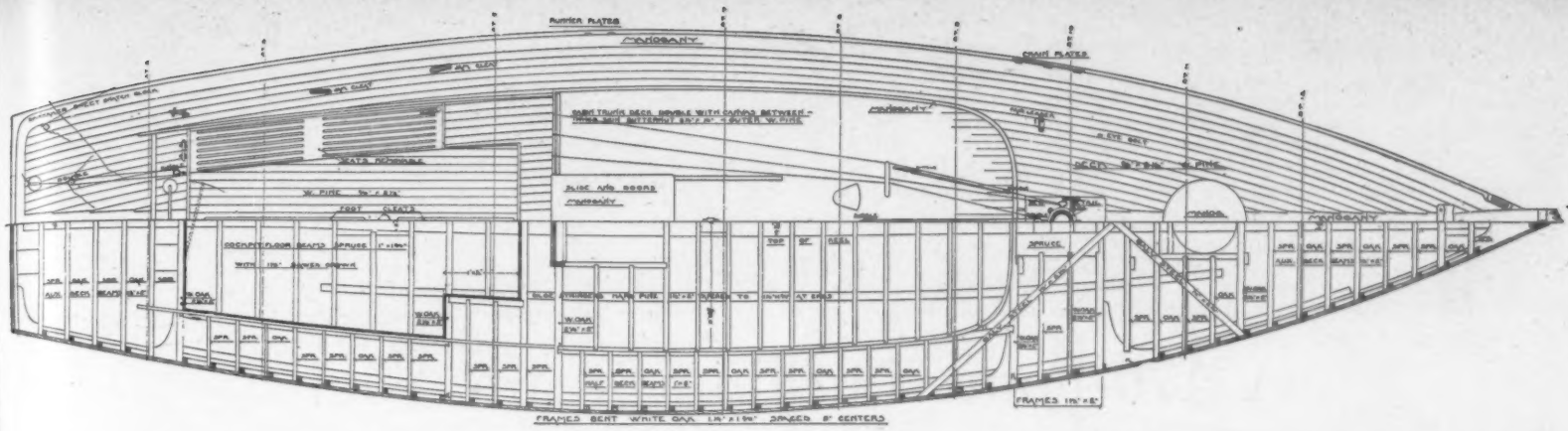
The general design and construction is quite similar to that of the Massachusetts Bay 22-footers, but with somewhat longer overhangs than the restrictions permitted in that class.

While racing was the principal object in view, comfort is not entirely lacking, the cabin accommodations being sufficient for six people.

The construction is a little heavier than usual in a boat of this type, the closely spaced frames and double planking forming a very rigid structure.

The cabin is neatly finished in butternut and mahogany, and contains four permanent berths, an ice box and clothes lockers aft, and at the forward end a toilet room and galley.

The boat was not designed to fit any particular class, but to race wherever she would fit in. Mr. Smith wanted a boat that would finish first reasonably often, regardless of position when time allowance and handicaps were figured out; that she filled the bill the following extract from one of Mr. Smith's recent letters will show. He says: "The boat is perfectly beautiful, and has been much admired by all yachtsmen in this vicinity. In regard to her speed, can only say that she has proved most satisfactory in every respect. Blow high or blow low, she usually

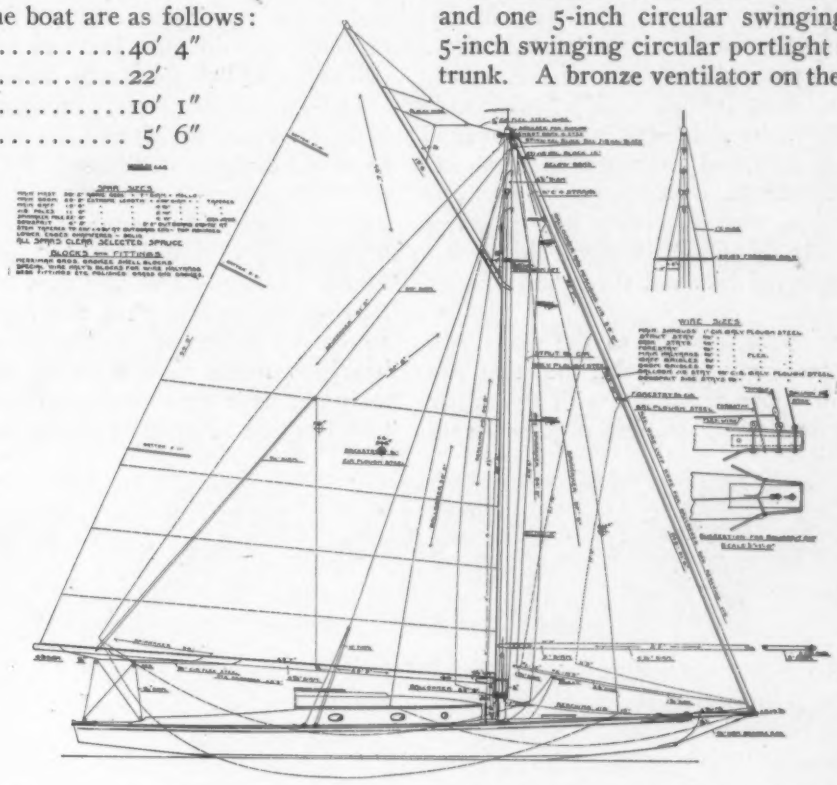


finished in first place, and I won with her nearly every trophy given for this season, including the season championship in the handicap class."

The general dimensions of the boat are as follows:

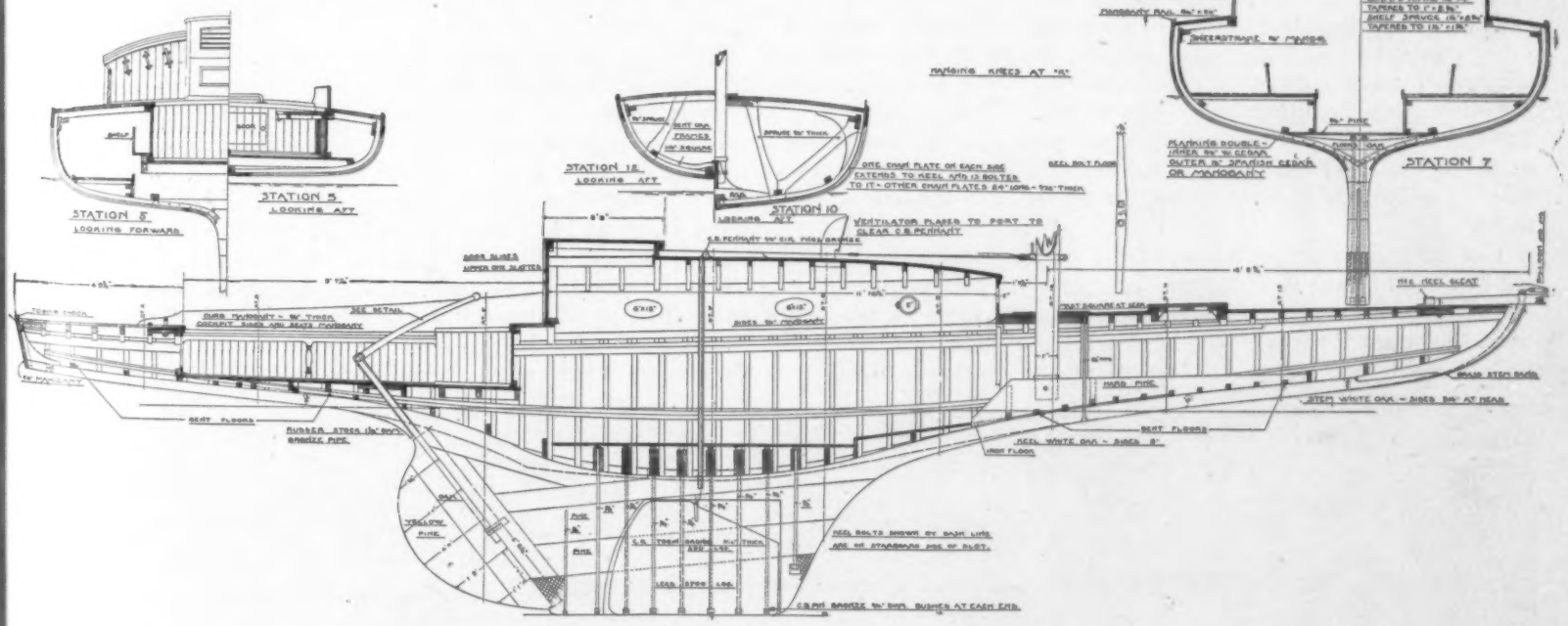
Length over all	40′ 4″
Length, waterline	22′
Beam, extreme	10′ 1″
Draft, without board	5′ 6″

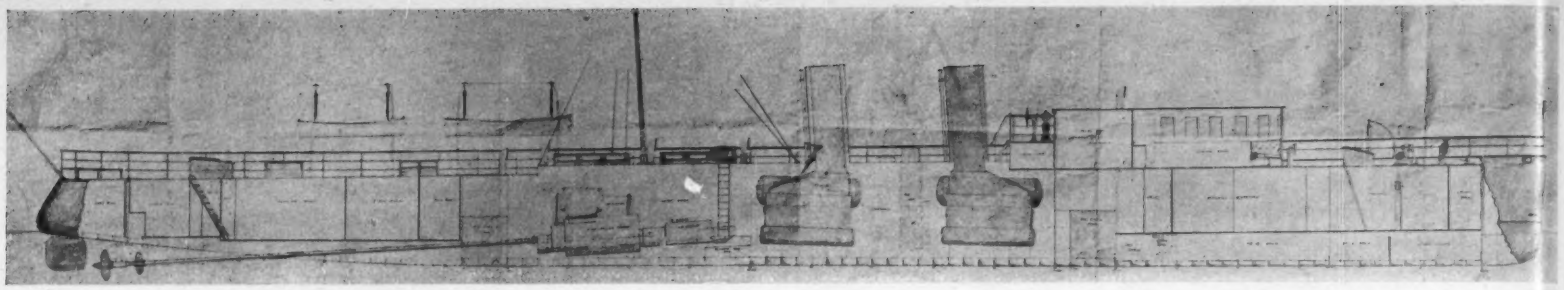
She has a fairly flat floor amidships, making her a roomy boat. Her tobin bronze centerboard of 250 pounds weight houses in the keel below the floor. She carries 2,700 pounds of lead as outside ballast, and is double-planked, the inner planking being ⅜-inch white cedar and the outer planking of ½-inch mahogany. She has a hollow mast 7 inches in diameter. It measures 36 feet 2 inches above deck, while the main boom is 29 feet 9 inches and the gaff 19 feet 6 inches in length. The main shrouds are of plough steel 1 inch in circumference, and strut stays, back stays and fore stay are of the same material. Her cabin is arranged to furnish very comfortable sleeping accommodations for four people. The forward berths are 6 feet and the after berths 6 feet 7 inches long, extending under the side decks.



In each side of the cabin trunk are two 6 x 12-inch, fixed-oval and one 5-inch circular swinging portlights. There is also a 5-inch swinging circular portlight in the forward end of the cabin trunk. A bronze ventilator on the cabin roof—just to port of the center line, so as to clear the centerboard pennant—insures good ventilation. There is a zinc-lined icebox just aft of the companion steps that drains into the bilge.

This boat represents a class of sailing craft that has much to recommend it. Fast and able enough to give a good account of herself in any contest in which she may enter, her solid and workmanlike construction renders her an able boat for cruising, while her liberal living accommodations permits of her being used for that purpose with a degree of comfort unfortunately not always present in some of our record-breaking boats. She is a fine type of the cruising racer that is now becoming so popular.


STATION 5
LOOKING AFT
STATION 8
LOOKING FORWARD
STATION 12
LOOKING AFT
STATION 10
LOOKING AFT
STATION 7
RAKING KEELS AT "B"
ONE CHAIN PLATE ON EACH SIDE EXTENDS TO KEEL AND IS BOLTED TO IT - OTHER CHAIN PLATES 84" LONG - ⅝" THICK
VENTILATOR PLACED TO PORT TO CLEAR CB PENNANT
PLANKING DOUBLE - INNER ⅜" W. CEDAR, OUTER ½" SPANISH CEDAR OR MAHOGANY
KEEL BOLTS SHOWN BY DASH LINE ARE ON STARBOARD SIDE OF KEEL.



A 170-Foot Turbine Steam Yacht

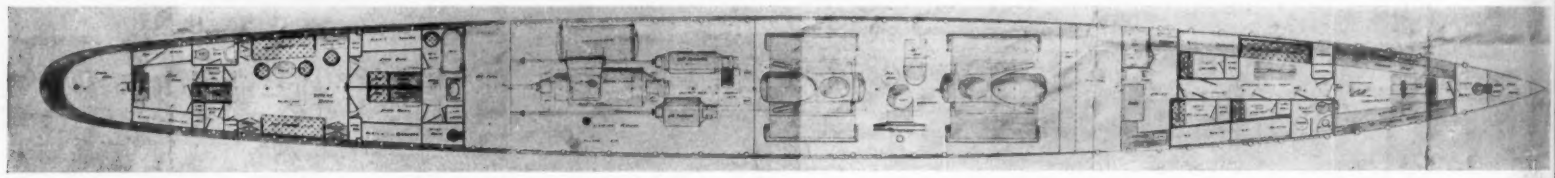
THE frontispiece of this issue and the accompanying plans are of the new steam yacht Winchester, which is now being built in England for Mr. Peter W. Rouss, of the New York Yacht Club, and which will make her first appearance in these waters in August. The drawings are published by courtesy of Messrs. Cox & Stevens, of this city, who, together with Messrs. Cox & King, of London, have prepared the plans of the vessel, and are now superintending her construction at Yarrow's yard. This vessel will be, without doubt, the most striking steam yacht that has yet been built, as she has a speed guarantee that will insure her beating any other yacht afloat, with the possible exception of the new Little Sovereign, now receiving her finishing touches at Seabury's yard for Mr. M. C. D. Borden. Many interesting trials of speed are expected between these two vessels this summer.

Notwithstanding the extreme speed, a study of the plans will show that this boat will be exceedingly seaworthy, and that she possesses an unusual amount of room compared with any other vessel of her type. The accommodations on fast express steam yachts heretofore have amounted to little or nothing except small and cramped space below. Winchester will not only have a large and very comfortably arranged dining-room, but in addition the owner will have in the after part of the vessel three large staterooms, a bath-room, lavatory, and a saloon of most generous dimensions. Another thing that will make her unusually attractive is that, being flush-decked, there will be very few obstructions, and a great deal of deck room is available.

The interior finish is to be very handsome, the owner's quarters being paneled in African mahogany and the other staterooms in Circassian walnut, while the saloon will be Colonial finish, having mahogany furniture and white panels. The sailing master has a room in the deck house, where the pantry is also placed, aft of the saloon, and the galley is below, with dumbwaiter connection. The officers' staterooms and crew's quarters are below, forward.

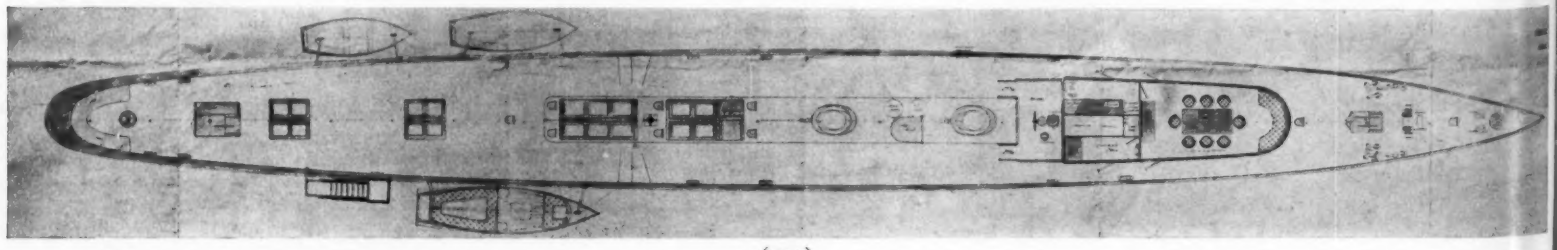
The approximate dimensions of the vessel are: Length over all, 170 feet; beam, 16 feet, and draft, 9 feet. Her engines consist of three Parsons turbines, developing about 1,000 horsepower each, the steam for which is to be generated by two large Yarrow water-tube boilers A novel feature of the machinery installation is that crude oil is to be used as fuel in place of coal This is the first time that fuel of this character has ever been used on a yacht, although it has been adopted in connection with turbines by all the builders of torpedo boats abroad for the past four years, and has this year been adopted by the United States Government on some torpedo boats just ordered.

The hull is of steel, and the necessary strength is secured by the use, in proper places, of a special high-tension steel, which has been developed by Messrs. Yarrow & Co. The form of the hull has been designed with the intention of securing a boat that will be easily driven, and at the same time will be a good sea boat. There is a certain amount of dead rise to all the sections, and the deck line is very full forward, giving a pronounced flare to the forward sections, that will tend to keep the vessel dry even when moving at a fast rate through the water. A rather unusual amount of freeboard has been given, particularly forward, as this has been found most useful in torpedo boats, enabling them to maintain their maximum speed in rough water. The construction is most substantial throughout, as was necessitated by the fact that the yacht will have to cross the ocean and may encounter heavy weather. She has a complete steel deck with a wooden deck laid over it, the plank being tapered from end to end, thus giving a very fine finish. The deck house, rails and all skylights, hatches and other deck bright-work are of teak.



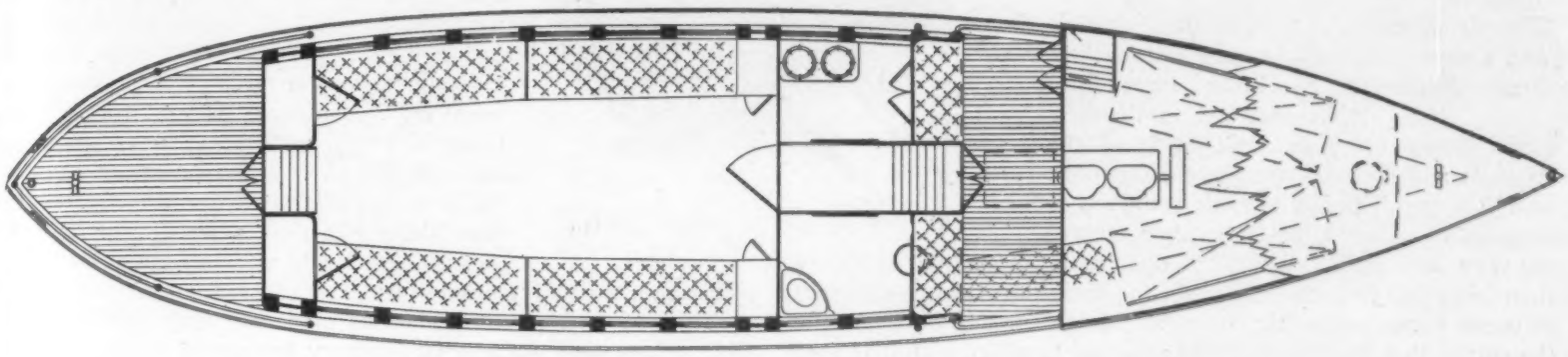
As regards speed, while the builders' contract only calls for 26 knots—approximately 30 statute miles an hour—they are confident, and the designers also expect that this speed will be considerably exceeded.

In appearance Winchester will be very striking, as may be seen from the accompanying illustration. She has a very straight and graceful sheer, and her rail freeboard is relieved by the fact that her body will be painted black, which, in conjunction with the long teak deck house, khaki awnings and buff stack, will produce a very pleasing effect. She will be in daily service between Twenty-third Street and her owner's handsome country residence at Bayville, L. I., and will consequently be much observed by those that live on or near Long Island Sound. The reason that so large and powerful a vessel was wanted by Mr. Rouss on this trip was that he wished to be able to make his schedule time of an hour between Twenty-third Street and his home, irrespective of the weather con-



ditions, and at the same time wished to be able to do considerable cruising in Eastern waters, and in the West Indies, at certain times of the year. Winchester, by reason of her size and powerful lines, will be able to maintain her maximum speed under weather conditions which would force a smaller and lighter vessel to slow down, if not to stay in harbor.

The success of this boat will be watched with much interest by all engineers, as well as yachtsmen, for the reason that the combination of oil fuel, water-tube boilers and turbine engines is no doubt the very quintessence of mechanical perfection in machine propulsion. On the representations made by the builders, whose experience has been very extended, and who also speak with knowledge, a very considerable economy is expected in this vessel; and naturally the convenience to the owner of not having to undergo the constant annoyance of coaling ship, with its accompanying dirt and dust, will be a decided advantage. It is more than likely that the same combination of fuel and power will be applied to many other vessels in the near future.



A 47-Foot Bridge Deck Day Boat

THERE is now building at the yards of the New York Yacht, Launch & Engine Company, Morris Heights, for Mr. V. M. Beolchi, of Yonkers, a compromise stern cruiser for use on Long Island Sound. The Fortuna III, as she will be called, is 47 feet in length over all, 10 feet beam and 3 feet draught.

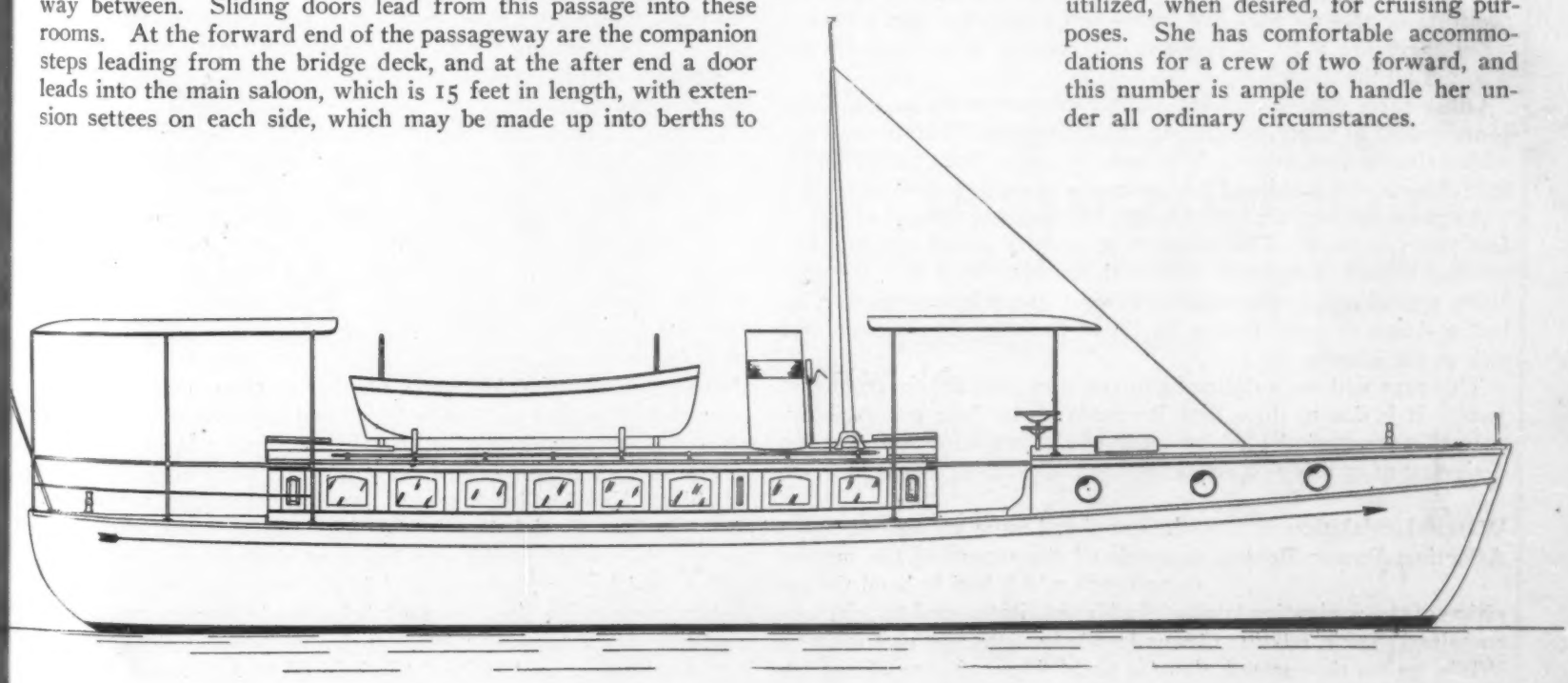
She has a raised deck forward covering the engine room and crew's quarters, with a steering bridge and a glass-sided trunk cabin aft covering saloon and galley, with a bridge deck separating the two houses. The engine room-forecastle is 10 feet long, and at its after end is installed a four-cylinder, 24-horsepower 20th Century engine, controlled from the bridge. In this room there are also two folding pipe berths and a locker seat, which extends under the bridge deck.

The engine room companionway is on the port side and leads to the bridge deck. Under the forward end of the after deck house are located the galley and toilet room with a 2-foot passageway between. Sliding doors lead from this passage into these rooms. At the forward end of the passageway are the companion steps leading from the bridge deck, and at the after end a door leads into the main saloon, which is 15 feet in length, with extension settees on each side, which may be made up into berths to accommodate four people. There are four good-sized lockers in the saloon, and this compartment, by means of a curtain, may be divided into two staterooms. Companion steps lead to the after deck, which is 8 feet long and shaded by an awning mounted on metal stanchions. The after cabin is lighted by large plate-glass windows arranged to raise and lower.

The steering is done from the bridge deck by means of an automobile type steering wheel, on which are grouped the spark and lever controls and also the reverse mechanism for the engine. A pair of very comfortable settees, one on each side of the companionway, make this an attractive observation deck in pleasant weather.

There is a ventilating dummy stack on the after cabin trunk, and the boat carries an 11-foot dinghy on davits and a removable signal mast.

This is a type of craft particularly adapted for use as a day boat or for ferry service, and which, at the same time, may be utilized, when desired, for cruising purposes. She has comfortable accommodations for a crew of two forward, and this number is ample to handle her under all ordinary circumstances.



EDITORIAL

Published by the Yachting Publishing Co.: Oswald Garrison Villard, President; Robert M. McBride, Secretary and Treasurer.

The Bermuda and Other Ocean Races As the time of this year's Bermuda race approaches, the yachting community looks forward to the first long-distance event in anticipation of the struggle and speculation as to the outcome. In a year that bids fair to rank at the top of long-distance events, the Bermuda contest—the very race, in fact, which has done more than any other to open the eyes of the yachting world to the sport of ocean racing—does not seem, at this writing, to be attracting the entries that it did some years ago, and to which its importance entitles it.

At present there are but some five or six boats entered, though there may be more by June 5. This apparent loss of interest is probably due to several causes. Chief among these, I take it, is that the course itself is losing some of its novelty. Those that have been already two or three times—and they are the ones who could best spare the necessary three weeks or so, and were not afraid to go—know the course and the islands, and would rather do their cruising or racing in new and unfamiliar waters. The date may also have something to do with it, as June 5 is pretty early in the year to get overboard and in shape for a hard race.

Letting in the larger classes has also forced the little fellows out of it, more or less, and the small boats have usually constituted the bulk of the starters. In long-distance racing, even when different classes are provided, the little fellows have always shown a disinclination to go in with the big boats. There is not much fun in sailing a hard, tiring race of several days and letting the big boats and the professional crews get all the credit. I know a number of boats from 40 to 50 feet long which could go the Bermuda course, and whose owners could sail them there; but it is a hard, tiring, and, in event of fresh breezes, a wet and uncomfortable trip on a 40-foot boat—and what's the use, anyway, when there are a lot of professionals sailing with bigger boats who get all the glory?

Other races over somewhat shorter courses, such as the Cape May, appeal to many as offering the attractions of an ocean race with a shorter time away. Why not try a race from Sandy Hook to Halifax in the middle of the summer and see how it would take?

As to the power race to Bermuda, I look to see that grow, for a few years at least. The power boat and its owner are just beginning to find themselves, and, with the able craft that are now being turned out for coastwise cruising, there is no reason why half a dozen or more cannot be found to make the journey and pick up the islands.

This year will see a decided improvement over the fiasco of last June. It is due to these first Bermuda power boat events, however, that we are indebted for much of the healthful turn that the designing of cruising power boats has taken.

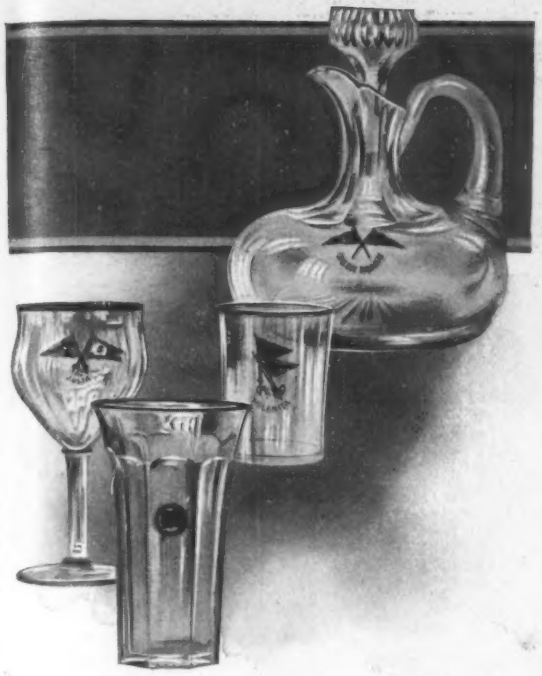
Watch Legislation Affecting Power Boats In our April issue we had occasion to speak of the report of the marine commission which had in hand the revision of the navigation laws of the United States, and the changes contained therein relating to new legislation affecting motor boats. While, as we then stated, there is probably no chance of any action being taken on this report before the next term of the Legislature, and this summer will see no change other than that the existing laws as regards equipment will be more rigidly enforced, it would be a wise thing if every motor-boat owner became familiar with the proposed changes, so as to be in a position, when the time arrives, to take definite action against those provisions which would work unnecessary hardship against small pleasure craft.

Some of the recommendations made are undoubtedly good, while others seem not only unnecessary, but would result in a serious setback to the sport and the motor boat industry. We have already called attention to some of these detrimental provisions. It cannot be impressed too strongly upon motor boat owners that they should individually, or through their clubs, obtain copies of this proposed bill and become personally familiar with its various clauses. They may be had by writing the Chief Clerk, Document Room, U. S. Senate, Washington, D. C., and asking for Senate Document No. 701. The National Association of Engine and Boat Manufacturers has also prepared copies of the minority report of Mr. E. T. Chamberlain, Commissioner of Navigation, which went with the report pointing out its defects, which may also be had for the asking. As no action on the bill is now contemplated, it would be unwise to push the matter at present; but owners should be prepared when the bill comes up for final hearing with letters to their Senators and Representatives giving specific reasons why certain provisions are harmful. Several committees are also watching the matter, but the individual boat-owner can do much to help.

A Michigan Number It is hard for those who live along our Eastern or Western seaboards to realize the opportunities presented by some of the States bordering upon our inland waterways for the development of maritime commerce and sport, and the extent to which the industry developed by these has grown.

Of all the States bordering upon the Great Lakes, Michigan, by virtue of its geographical position, has developed these possibilities to such an extent that, at present, it is an acknowledged fact that there are more engine and boat-building works in that State than in any other in the Union. With a shore line of some 1,400 miles, deeply indented with many fine bays and harbors, and with fine forests of timber within its borders, it not only presents unusual facilities for the manufacturer, but also for the use of his product, be it for commerce or pleasure. Not content with this shoreline, there are many fine lakes and a number of rivers deep and broad enough to furnish excellent boating, and the advent of the internal-combustion engine opened up these natural waterways.

Having this in mind, we have made this issue of YACHTING a Michigan Number, inasmuch as we have devoted considerable space in the editorial section to articles relating to Michigan and its possibilities from the standpoint of the motor boatman and sailor, and have added a special Michigan section to our advertising space, with the object of bringing before the rest of the yachting community just how much that State is doing for the cause at large as well as for the individual boat-owner.



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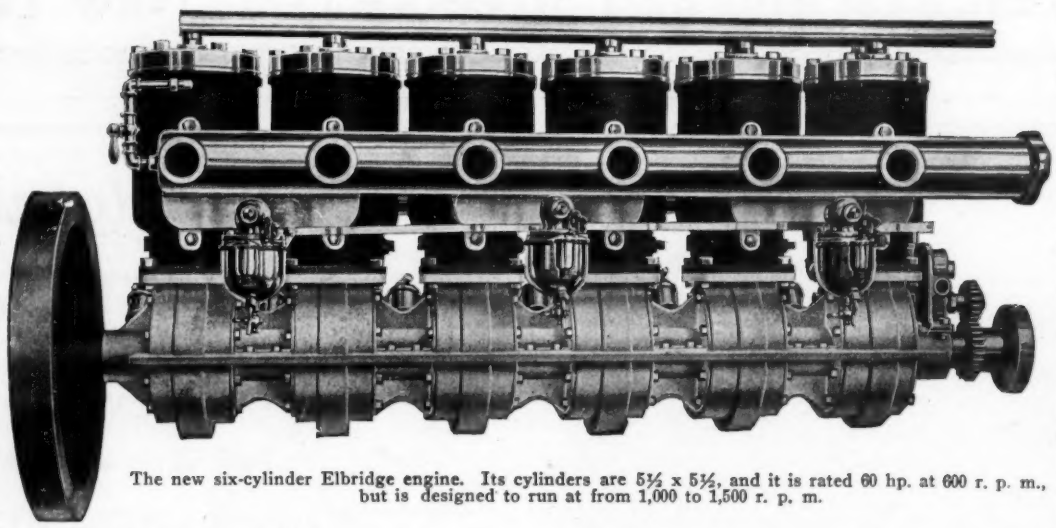
Engines for the Racing Man

A strong bid for the patronage of owners of racing, semi-speed and express boats is being made by the Elbridge Engine Company, of Rochester, N. Y. They have a line of engines ranging from 12 to 160 horsepower, designed particularly to meet the requirements of fast hulls, and doubtless Elbridge engines and boats will be numbered among those finishing "in the money" in many of the important racing events of the season.

Certainly, most attractive in appearance is the "Big Six" shown in the accompanying illustration. This is one of a pair recently shipped to speed-boat enthusiasts on the Mississippi River. One of them is to be installed in a new boat built for Mr. Frank Zinnel, of Savanna, Ill., and entered in different Mississippi River races. In order to be "in the money" it is said that this boat will have to travel in the 30-mile class, and her owner is confident that she will be able to do so.

The engine, six cylinders, has a bore and stroke of 5½ by 5½ inches, and weighs, without clutch, less than 700 pounds. It is conservatively rated at 60 horsepower at 600 revolutions per minute, but is designed to run at 1,000 to 1,500 revolutions per minute. The heads, manifolds and bases are made of a particularly tough copper-aluminum alloy, which is said to withstand terriffic heat without deteriorating. The exhaust chamber is without jackets, being cooled by a fine spray of water, which acts as a partial silencer, and is provided with auxiliary ports for use in speed work, allowing the cylinders to exhaust directly overboard.

"Built as carefully as any watch" is the Elbridge claim, borne out by the workmanship on these speed engines, from flywheel to shaft coupling. The cranks are turned from old-fashioned, anvil-forged billets, lathe-turned to the 1/1000 part of an inch. Each of them represents more than two weeks' ceaseless work of a highly skilled mechanic. All bearings are unusually wide, and they are made of a special quality of motor babbitt. Throughout, the engine is as nearly a work of art as a strictly mechanical product can be; so carefully was it designed that not a single change had to be made from the time the drawings were turned over to the pattern-maker to the time the finished parts were assembled. The completed engine, bolted to the testing block, started at the first turn of the crank, and showed its rated power in the first hour of running.



The new six-cylinder Elbridge engine. Its cylinders are 5½ x 5½, and it is rated 60 hp. at 600 r. p. m., but is designed to run at from 1,000 to 1,500 r. p. m.

A fuel-consumption test was made on the second day of work-out, and showed that the engine burned 40 pints of gasolene in 50-horsepower hours. It is expected that this rate of consumption will be materially reduced when the engines are properly tuned up for their season's work.

In one way the Elbridge Engine Company claims to be unique among manufacturers of marine engines, and that is that every engine in their line of twenty models is redesigned each year, to include any improvements that may have appeared during the year. The "Big Six" is the last of the Elbridge line to emerge this season, and now, like all the others, is ready for delivery.

The makers of Elbridge engines claim more power for any given piston displacement, and less weight, than in any other engine on the market, as well as a speed range of 200 to 2,000 revolutions per minute. The many exclusive features of Elbridge engines are illustrated and described in their new catalogue, which will be sent free upon request to such of our readers as mention YACHTING when asking for same.

See How the Dories Go

The Toppan Boat Company, of Boston, report very lively sales in their finished boat and knock-down frame departments. Among recent shipments made are the following: One 22-foot new type Toppan safety launch, equipped with 8-horsepower, jump-spark reversible engine, to E. T. Wheelock, Swanton, Vt.; one 22-foot of the same type, equipped with 5-horsepower engine, to Mr. George F. Dubner, 828 Amsterdam Avenue, New York; one 22-foot regular dory, equipped with 5-horsepower Toppan engines, complete with full cover and brass fittings, to A. T. Berry, 165 Broadway, New York; one 18-foot regular dory, equipped with 3-horsepower Toppan engine, to Charles B. Clark, West Point, N. Y.; one 20-foot regular dory, built extra heavy, with 5-horsepower Toppan engine, to the North Anson Lumber Company, North Anson, Me., to be used for towing; one 20-foot regular safety launch, to Gustav Schwab, Worcester, Mass.; one 18-foot regular dory, to C. E. Searles, Marlboro, Mass. This company have also two 30-foot trunk-cabin cruisers in process of construction, to be shipped in the near future. One is D. G. Ross, Tie Plant, Miss., and will be equipped with 12-horsepower Toppan with reverse gear. This boat will have canvas-covered decks, engine housed in, hatch in forward deck, and, in fact, everything that goes to make an up-to-date cruiser complete. The other has been purchased by C. K. Benedict, of Glendale, Ohio, and is very similar to the one described. The company is now building a 25-foot safety launch with trunk cabin, and equipped with 8-horsepower, jump-spark engine, for Mr. E. L. Manville, New Haven, Conn. Mr. E. Allen, of Garden City, Long Island, N. Y., recently placed an order for two of the Toppan outfits, and will receive the first one this week. This is one of the 18-foot regular dories, equipped with 3-horsepower Toppan engine. Shipment has just been made of one 18-foot regular dory, equipped with 2-horsepower engine, to Capt. F. H. Lomax, care United States steamer Jessup, Fort Andrews, Mass. In the knock-down department shipments have been recently made to the following: One set of 18-foot knock-down frames to E. A. Ryant, 170 Kenyon Avenue, Pawtucket, R. I.; one 20-foot, to P. L. Oakes, Newport, Me.; one 20-foot, to William B. Stout, 533 Baronne Street, New Orleans, La.; one 18-foot, to R. M. Amory, 20 South Main Street, Fond du Lac, Wis.; one 20-foot, to William H. Whitney, 182 Bay Eleventh Street, Bath Beach, Brooklyn, N. Y., and one 20-foot frame, to B. C. Sherman, Newton Upper Falls, Mass. In the engine department shipment has just been made of one 18-horsepower, two-cylinder speed engine, to Ralph E. Rich, Boston, which is the third engine that he has purchased from the Toppan Company. Also one 3-horsepower engine to William H. Whitney, 182 Bay Eleventh Street, Bath Beach, Brooklyn, N. Y.; one 8-horsepower motor, to George Berrio, Canal Street, Boston,

After Shaving

POND'S EXTRACT

THE BEST PART OF THE SHAVE
IS WHEN YOU COME TO

POND'S EXTRACT

Relieves Irritation **Prevents Inflammation**
Assures Comfort

Used by men of discrimination everywhere. Sold only in sealed bottles—never in bulk. Write for interesting booklet on shaving,—mailed free on request.

LAMONT, CORLISS & Co., 78 Hudson St.
Sole Agents, New York

PETER'S

The Original

Milk Chocolate

"HIGH AS THE ALPS IN QUALITY"

stands at the summit of excellence for it surpasses other brands at every point of comparison.

More Wholesome!
More Sustaining!
More Delicious!

Peter's has the true chocolate flavor which appeals to everyone.

It is not too sweet and you never grow tired of

GALA PETER

LAMONT, CORLISS & CO.
SOLE AGENTS
NEW YORK CITY

INDIAN GIRL CANOES

For Safety, Comfort, Beauty, Long Service

If you are a canoeist you know the qualities to look for—the perfect adjustment of width to length, with bottom flat and just broad enough to insure steadiness and seaworthiness, without the sacrifice of speed or beauty of design.

You want a canoe as strong as it can be made, but without an ounce of unnecessary weight—you want a body and a canvas covering that will withstand the buffeting of the rapids, the rocks and the snags. You want a craft that will keep its good looks and serve you well for many years—not for one season.

Such a canoe is the Indian Girl, in its various sizes and prices for it is a Rushton canoe. No other builder of canoes ranks with Rushton in exactness and grace of design, quality of materials used, careful workmanship and high degree of finish. For 36 years the name Rushton has stood for all that's best in canoe building, both to the sportsman who wants service more than anything else, and to the family summering by lake, river or sea.

TRADE MARK Rushton

Write for Free Book

Our canoe book is full of valuable suggestions. You should have it before you when planning your vacation. It illustrates and describes different styles of canoes. One will suit you in design, size and price. If your dealer has no Rushton we will supply you direct. But write us first for book and prices.

J. H. RUSHTON, Inc., 652 Water St., Canton, New York

YOUR SAFETY DEMANDS THE Baldridge Reverse Gear

"Makes Good When The Test Comes"

Absolute control of your engine doubles the pleasure and convenience of Motor Boating. The Baldridge gives you absolute control in starting, backing up or stopping.

If you look into the Baldridge, you won't wan one of the "dirt cheap" kind of reverse gears.

After a smash-up, it isn't much satisfaction to remember you bought your reverse gear cheap. Every Baldridge tested in water before shipment, and fully guaranteed.

Prices and descriptive matter sent on request. Agents Wanted.

The Smith & Baldridge Machine Co.
68 Amsterdam Ave., Detroit, Mich.

Perfex Ignitor, combining induction coil and spark plug.

Mass., and one 8-horsepower, to James Magee, Haymarket Square, Boston, Mass.

Cutting Down the Travel of the High-Tension Current Insulate it as you will, watch it, treat it, in fact, like a spoiled baby, and just when you begin to figure out that you have conquered its innate cussedness, your high-tension current is apt to break out in a new place at the most inconvenient possible time. That is why the motor-boat owner of experience cuts down as much as possible the length of his high-tension wiring. He realizes that with every inch saved on this portion of his electric circuit, the less chance there is of leakage or induced currents.

Now comes the Electric Goods Manufacturing Company, of Pearl and Purchase Streets, Boston, Mass., with a new jump-spark outfit, which cuts down the secondary wiring from coil to spark plug to about 1¼ inches, eliminating the possibility of short circuiting secondary wires, or of the owner or passengers of the boat receiving a free electrical treatment for which they were not scheduled.

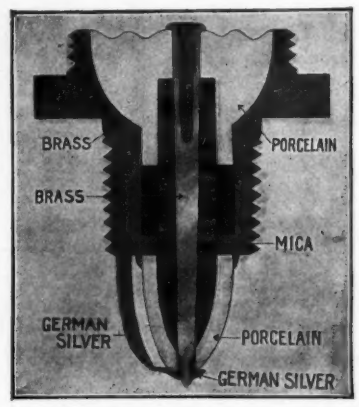
The Perfex Ignitor is a combined, removable induction coil and spark plug. The induction coil is encased in the cover, which is waterproof, heat-proof, a perfect insulator and strong enough to stand considerable rough treatment without breaking. Moreover, it has the advantage of being removable at the pleasure of the owner, thereby not only insuring against theft, but putting a boat out of commission to any but her rightful navigator. The detachable spark plug screws into the induction coil, and may be readily detached in case of trouble. It is machined from solid brass, all metallic parts being heavily nickel-plated. The sectional view shows the annealed porcelain, made in two sections, to prevent cracking from unequal heating at the extremities. The electrode is completely insulated from the metal portion of the plug by a rolled mica tube, protected from oil and damage by the porcelain thimbles. In case of trouble with the spark plug itself, its peculiar construction makes it very easy to remove it and insert a new plug. These plugs are regularly furnished for standard ½-inch pipe thread, but any thread can be supplied.

The case containing the combined vibrator and condenser is of a composition not affected by exposure to rough weather or to salt or fresh water. It will neither rust, tarnish, crack nor warp. The binding posts are entirely contained within the box, the wires passing in through the side, as shown. The condenser is hermetically sealed in the lower compartment, while the upper compartment contains the vibrator, the cover of which is held by a spring catch. The case measures 3½ inches wide, 7 inches high, and is only 1¼ inches thick.

The new-style detachable vibrator is normally held in its box by springs, as shown. It can be instantly removed for examination, or as quickly replaced by another. The removal feature enables it to be used as an effective "lock" for the engine, as it can be readily hidden when leaving the boat. This vibrator is extremely "fast" and practically noiseless. The contacts are iridio-platinum, and will not easily pit nor wear. Adjustment of the contact is made by slight turns of the milled wheel. A lock spring prevents changing of adjustment by vibration. The vibrator magnet is molded into the base, and is moisture-proof. All wiring is concealed.

Primary wiring only is required, the accompanying diagram showing its simplicity. The timer, or wire leading to it, should be grounded in the engine. The binding posts of ignitor are its two primary terminals; the spark points are its two secondary terminals. Each ignitor completes the secondary circuit within itself when, and only when, the timer makes contact for that circuit. Wire is run from carbon of battery to *X* on the vibrator box, and from *O* of vibrator to *O* on the ignitor. Current may be used from dry cells, storage battery, dynamo, or any magneto that will operate jump-spark. Three or four cells will operate the system, but to use six is more economical.

Vibrator removed from box.



Sectional view of Perfex Ignitor, showing how detachable spark plug screws into induction coil.

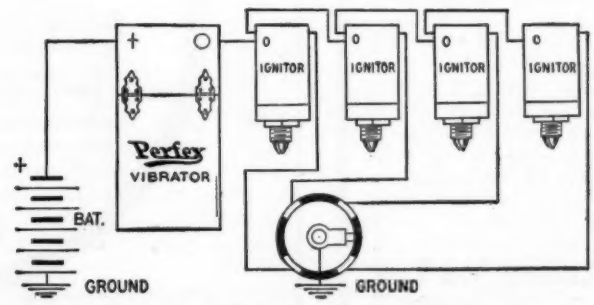


Diagram of wiring for the Perfex Ignitor system.

The Dory as a Part of a Summer School Equipment Dr. Gibson Bell, of the St. Paul School, in Concord, N. H., has placed an order with the Camden Anchor-Rockland Machine Company for a 25-foot yawl-type dory. This boat will be equipped with a 7-horsepower, two-cylinder, Knox engine, and will go in commission during the latter part of June. The boat is to be used in connection with Dr. Bell's summer school at Orleans, Mass., where some twenty-five young men will be given, among other things, a course of instruction in power boating. This would appear to be an innovation along this line, and the fact that it had its inception in one of the most exclusive preparatory schools in the country may eventually lead to the adoption of a similar course on the part of like institutions.

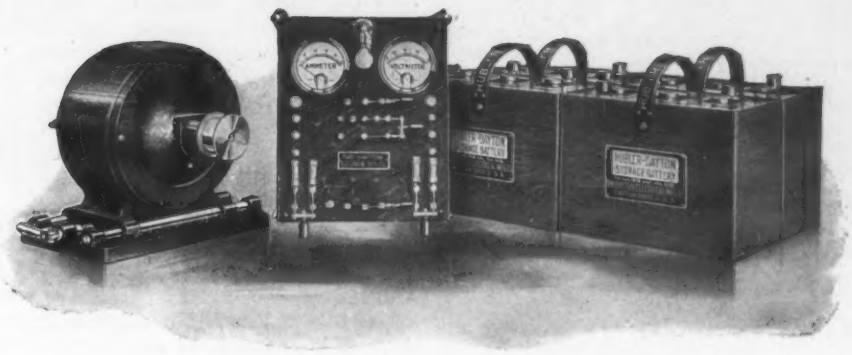
Vibrator box, containing condenser. This measures but 3½ x 7 x 1¼ ins.

For Keeping Fittings Bright at Moderate Expense and with Small Labor For the benefit of the skipper who has been spending a large proportion of his time polishing up his brass work, only to see it dimmed in lustre in half the time it took to make it shine, the Igniter Appliance Company, 302 Electric Building, Cleveland, Ohio, have brought out a preparation called Everlasting Lustre. The preparation is in liquid form, and metal surfaces on motor boats polished with it retain the original lustre indefinitely, as Everlasting Lustre is both weather and water-proof, obviating the expense and annoyance of continually polishing brass or other metal parts exposed to the weather. The Igniter Appliance Company claims that after one polishing the original lustre of the metal will be retained indefinitely.

An Extremely Good Varnish Record Kyanize Spar Finish is claimed by its manufacturers, the Boston Varnish Company, of Everett Station, Boston, Mass., to be the most durable spar varnish made. It is in use by some of the largest builders in the country, and the Boston Varnish Company have furnished nearly 12,000 gallons of this material to the United States Navy Department during the last year. They have in hand inquiries for nearly as much more. Kyanize Spar Finish is very light in color, of good body, free flowing and dries hard in from twenty-four to thirty-six hours, according to conditions. They had a report a few days ago, where this varnish had been on a boat one year, and the owner said that it was practically in as good condition as when it was applied.

Kyanize Spar Finish is for sale by most of the leading dealers, and the manufacturers are willing to open agencies in the handling of it in all ports.

How One Insurance Company has Protected the Public Almost every reader of this article is, or will be, the owner of a motor boat. Once he becomes an owner the question of insurance is of vital importance to him. This insurance should be placed in a well-known company. Now, every man who fails to collect an honest claim becomes a bad advertisement; he wishes to tell his wrongs to the entire world—he usually does. So, if the Insurance Company of North America had not always conducted its business on just business principles, the general public would have utterly destroyed its reputation years ago. They point, with no little pride, to the record of 117 years continuously in business; having gone through all the great conflagrations; paid to their policyholders over $140,000,000 in losses, and always conducted business so that they stood as steady as a rock, satisfying claims as fast as they could be adjusted. At Jacksonville they paid $100,000; at Toronto, $126,000; at Baltimore, $530,000. Do not forget that accidents may be caused through no fault of your own; conflagrations may be started in yards where boats are laid up by one small piece of carelessness. The Chicago fire is generally supposed to have been caused by a cow overturning a lantern. In that conflagration the Insurance Company of North America paid in losses $624,000. It is not claimed that this is the only first-class insurance company which has met its obligations fairly, but you can remember times of distress when a North America policy was as good as gold.



You Can Now Have Your Boat Flooded From Stem to Stern with Brilliant Light

We have solved the one difficulty that has stood in the way of perfect motor boat enjoyment.

No more tying at nightfall.

No more dark cabins.

No more foul, ill-smelling oil lamps that poison the air of the cabin and give only a weak imitation of real light.

No more trouble with signal and riding lights going out.

The Dayton launch lighting outfits have made this wonderful change—now you can use your motor boat night or day, with perfect safety and with added pleasure.

A Complete Electric Lighting Plant Right on Your Boat.

To briefly describe these outfits, they each consist of a dynamo that connects with your engine, and produces an unlimited supply of current; storage batteries in which this current is accumulated, and from which it is drawn as necessary for use; and a switch-board that gives you perfect control of the system at all times.

You can get the right sized outfit for a 12 foot launch or a 100 foot yacht, and no matter what system you buy, there is not the slightest danger of your current ever failing. Every system which we build, will carry an overload. The outputs of all of our outfits are conservatively estimated.

You Can Have A Searchlight.

With this outfit, you can operate a powerful searchlight—an invaluable part of the correct equipment for a motor boat. With it you can pick up buoys, make landings, steer a clean course, and have that feeling of safety which this protection affords.

You can carry bow and riding lights, red and green signal lights, and all the cabin lights you want. To while away an hour or two with a good book, or a social game of cards with your friends, can be counted among the pleasures at your command.

The Question of Safety.

With this system, you don't need a match on the boat.

With one turn of the switch you can flood the boat with pure, brilliant light from stem to stern. Oil lamps should have no place on the same boat where gasoline is stored. Better not run a motor boat, than run one where the element of danger is always present.

Besides the lights, you can operate an electric whistle, electric cigar lighter, etc.

Ignition Current Always Ready.

The same outfit you use for electric lighting can be used in furnishing an absolutely sure and inexhaustible source of ignition current. This costs you nothing, and is an item which in itself makes the installation of the Dayton Launch Lighting Outfit a profitable investment. It puts an end to all expense from batteries or battery renewals, to say nothing of added increase in the efficiency and added power of a perfectly ignited gas engine.

Every outfit we sell is made and tested right in our own factory. We have been making ignition apparatus for over twelve years, and are acknowledged to be the largest and leading concern in the United States manufacturing this line exclusively. Our efforts are devoted entirely to the manufacture of ignition and lighting apparatus.

The Apple Ignition Dynamo and the Hubler-Dayton Storage Battery, made only by us, are known as the most satisfactory ignition specialties of their kind, by thousands of motor boat owners.

If you wish any information on ignition or lighting for motor boats or automobiles, write us. Our experience is at your disposal Complete catalogs on request.

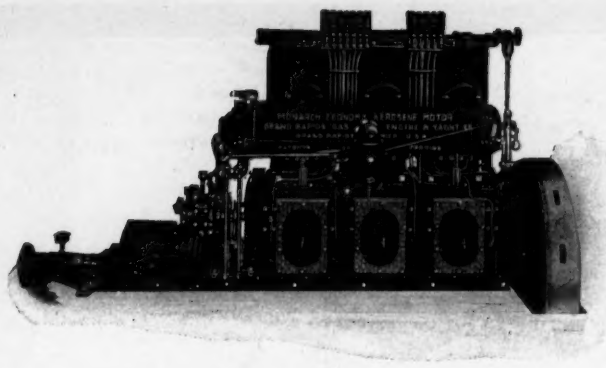
You should write for this Book to-day.

No other book ever printed contains the information we have here collected on the subject of **Electric Lighting for Motor Boats**. We want every motor boat owner to have a copy and have printed an edition which we believe is large enough to supply the demand. However, do not delay, but sit down and write us to-day for your copy. You will find it interesting and profitable.

The Dayton Electrical Mfg. Co.

Largest Manufacturers of Ignition Apparatus in the World

99 St. Clair Street --- --- DAYTON, Ohio



One of the Monarch Kerosene Engines, built by the Grand Rapids Gas Engine and Yacht Company.

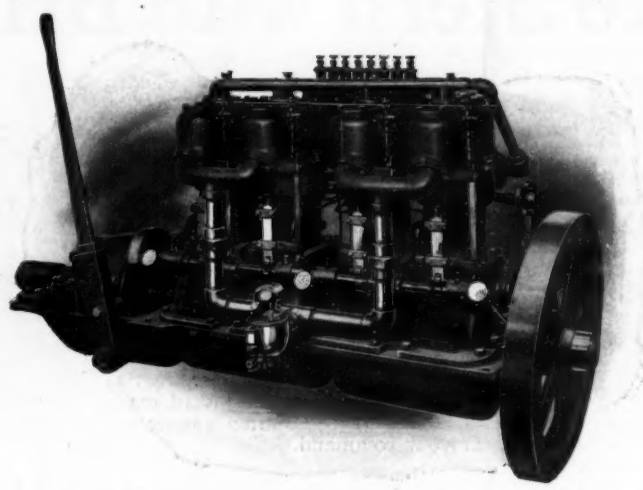
A Very Practical and Economical Kerosene Engine The kerosene engine built by the Grand Rapids Gas Engine & Yacht Co., of Grand Rapids, Mich., is built on the four-cycle principle, with suction supply, controllable electric ignition and smokeless exhaust The kerosene converter on this machine is a device installed between the carburetor and the charge-inlet valve. By means of this, liquid atomized kerosene oil is converted into a highly explosive gas. The manufacturers claim that the engine runs on 10 per cent less fuel and develops fully 10 per cent more power when operated with kerosene as a fuel than when run under gasolene. The engine is started on gasolene to warm it up, and, as soon as the change is made from gasolene to kerosene, the engine picks up speed.

The Grand Rapids Gas Engine & Yacht Company is in receipt of orders from all over the world, and have recently shipped two engines to St. Petersburg and one to Perm, making three shipments to Russia, and an 80-horsepower for Buenos Aires. The following communication received by them from Hong Kong, China, shows the good work which the Monarch is doing:

Electrical and Mechanical Engineers and General Machinery Agents.
4 Arsenal St.
Hongkong, China, Feb. 24, 1909.
Gr. R. Gas Eng. & Yacht Co., Grand Rapids, Mich.

Gentlemen:—The present serves to inform you that we have found your engine to be in good working order. It gives us every satisfaction. We enclose a photograph of the "Monarch" motor launch fitted with your 10-horsepower engine. The size is 34 feet by 7 feet; draft, 16 inches, hollow stern. The consumption is one-fifth gallon in kerosene for five working hours. The average speed is eight miles per hour. We hope to pass you repeat orders later on as soon as we have tested the working for some further time.

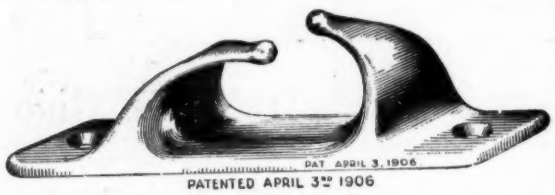
Yours faithfully,
FERNANDEZ & Co.



New four-cylinder, four-cycle Palmer, particularly adapted for use on auxiliaries.

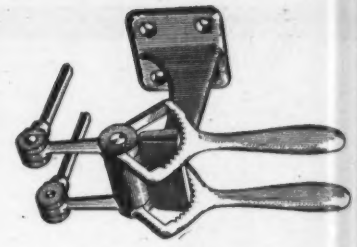
Three New Engines which Hail from Cos Cob Palmer Bros., of Cos Cob, Conn., have just brought out an addition to their line of gasolene engines which will be of interest to every motor boat owner. They will be known as R-4, K-3 and S-2. The R-4 is a four-cylinder, four-cycle motor with make-and-break or jump-spark ignition, as the purchaser may desire. It is built with cylinders of 5-inch bore, and 6-inch stroke. The reverse clutch is contained in the engine base, making the entire equipment firm and compact. The base is 54 inches in length, 16 inches in width, and from center of shaft to top of engine the distance is 24 inches. The fly-wheel is 18 inches in diameter. This engine turns a 24-inch three-bladed propeller 600 revolutions per minute, and is particularly suitable for rather full-bodied launches of from 30 to 40 feet, or for auxiliary power on sail yachts.

The K-3 is a heavy-duty, three-cylinder, four-cycle, with cylinder bore of 7½ inches and stroke of 10 inches. This engine is also fitted with either make-and-break or jump-spark system of ignition, as desired. It will develop 30 horsepower at 300 revolutions per minute, and drives a 38-inch, three-bladed propeller.



Improved Skene Chock, with ball points to prevent fraying of cables.

The S-2 motor is a two-cylinder engine of the two-cycle type, with bore of 4½ and 4½-inch stroke. It is fitted with reverse clutch, cased in the base of the engine, making both engine and propeller control practically a unit in the construction. The length of the base is 20 inches and width 12 inches. From height of center of shaft to top of motor the distance is 18 inches. This engine has a fly-wheel 15 inches in diameter, and swings a 20-inch, two-bladed propeller at 500 revolutions per minute, developing 7 horsepower. This engine is particularly suited to full-bodied open launches, and should give a particularly good account of herself in fishing boats, which at many resorts are utilized to tow the individual rowboats of guests to and from the fishing grounds.



A Morss Baby Lever Control, for bringing timer and throttle government to any desired part of boat.

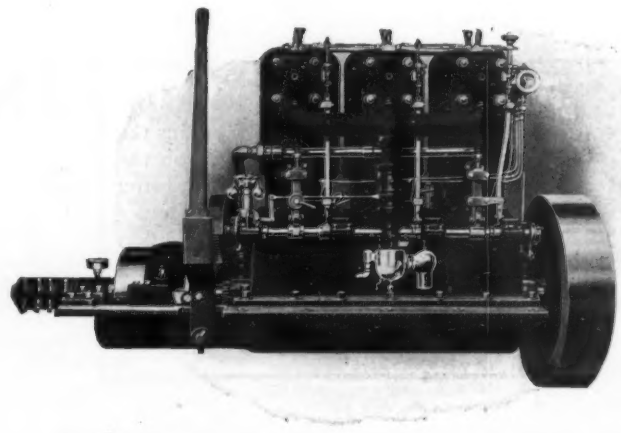
Recent Improvements in Chocks, Control Levers and Cowls Did you ever have the cable fly out of the chock when you were towing the tender in a seaway, or were moored in rough water? If so, the Skene chock, the invention of Norman L. Skene, which absolutely prevents such accidental disengagements, will interest you. The Skene chock has been known for some time quite favorably, and the 1909 patterns, which are being brought out with ball points, doing away with any chance of catching in the rope or fraying it, will add much to its popularity and perfect it for practical use.

These chocks are manufactured by A. S. Morss Company, 210 Commercial Street, Boston, Mass., and may be purchased from them, C. D. Durkee & Company, 2-3 South Street, New York City, or any other marine hardware dealer.

The Morss Baby Lever Controls are a neat little fitting for which there is a very active demand. It is now becoming common practice to lead all controls from the engine and the boat to one point, so that the skipper may steer and manage the boat from his seat as in an automobile. With this fitting located on the bulkhead or other support near the steering wheel, connection may be made with the levers on the throttle and timer by means of light brass rods. The levers work with ratchets, which hold them securely in any place at any desired position.

These are very neat little fittings, weighing but 14 ounces, and are made entirely of polished bronze. They are 5½ inches in total length of lever, and have a throw of 2⅛ inches. The price is extremely reasonable. Although this specialty has been out but a short time, it has met with instantaneous favor, and the Morss Company report large sales on them.

Among other Morss specialties which will meet with favor is the new Morss cowl ventilator, which replaces the old hood ventilator, to which they are much superior, being made in dies with welded flush seams, making the whole construction practically one piece of metal. They are



New heavy-duty, three-cylinder, four-cycle Palmer which develops 30 hp. at 300 r. p. m.

SPEED AND ELEGANCE

"ROCHESTER" 25 Foot Boat, 16 Horse Power, Speed 18 Miles.

in modern boats. Craft of speed for family, company and comfort, fitted with reed chairs, seated in hulls of utmost elegance; beautiful in shape, graceful in every curve and brilliant with brass and bright wood finishing.

Yes, they are gay looking, dainty craft at anchor; terrible opponents in the open sea. If you have raced a ROCHESTER you will know their invincibility to weather conditions; how safe they are and how they rip along at an 18 mile clip as easily as the others make their 8 or 9.

Literature on both ROCHESTER boats and ROCHESTER engines tells of a product out of the ordinary.

ROCHESTER GAS ENGINE CO

715 Driving Park Ave. Rochester N.Y.

℞ COMPOUNDED AND PRESCRIBED SINCE THE YEAR 1837

For Sale at the Better Class of Pharmacies in every

Port of Call

On the Atlantic, Pacific, Lakes or Gulf and All Seaports of Central and South America

May We Send You Our Novelty Self Lighting Matchless

Match Safes

of Especial Benefit to Yachtsmen and Brochure "Pills and People"

As A Laxative

Wright's Indian Vegetable Pills

Start You Right on Your Cruise and Keep You Right, All Right While at Sea

Wright's Indian Vegetable Pill Co.

372 Pearl Street, New York, U. S. A.

Edson Steering Gears

have stood every test for half a century.

Established 1859.

EDSON MANUFACTURING CO.
260 Atlantic Ave., Boston, Mass.

"THE INSPECTOR WILL GET YOU IF YOU DON'T WATCH OUT"

HOW ABOUT YOUR LIGHTS?

SEND FOR OUR BOOKLET A

It will tell you just what lights your boat needs

THE PORTER CO.

194 Water Street NEW YORK

MIDGET
Height 7 Inches

DWARF
Height 8 Inches

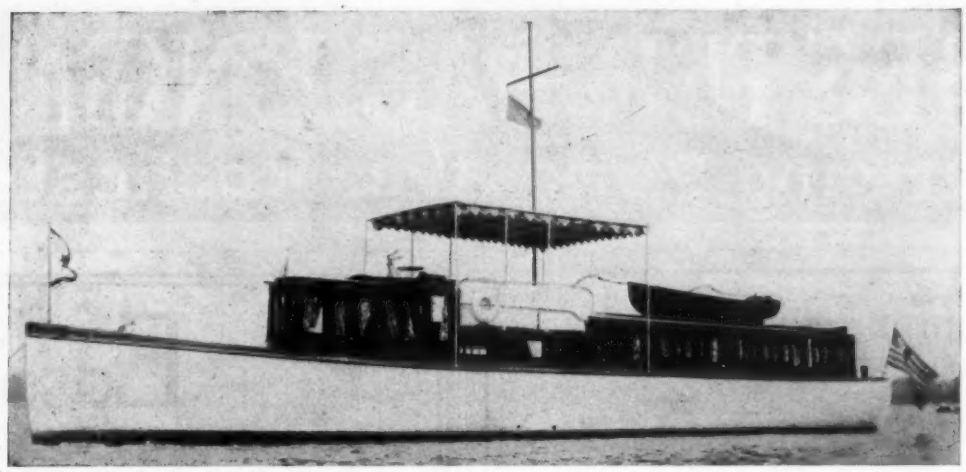
fitted with swivel joint, and are of the navy shape. They are made in both iron and brass, the iron cowls being of black iron, galvanized after being made up.

A Compact Air Compressor for Whistle Systems The illustration at top of this page shows a style of air compressor that is now being largely used on power boats for storing a supply of air for blowing whistles, etc. This machine takes up very little space, and is small enough to be placed under the floor of any fair-sized boat. It is very easily connected up, all that is necessary being to place it in line with the shaft coupling, or if this is not convenient, a small wood split pulley of the proper size may be used to drive it at the required speed. The lever alongside of the driving pulley, shown in the cut, controls the clutch, which can be thrown off or on at will when running engine at full speed. The workmanship is as good as is put on any first-class motor, the pistons, rings and cylinders being all accurately ground so that they fit perfectly, and there is practically no loss of air, but at every stroke the full volume or capacity of cylinder is forced into the storage tank. This machine is capable of giving a pressure from 175 to 200 pounds, which is seldom necessary, the usual pressure required being from 50 to 75 pounds.

The Yale Air Compressor for charging whistle pressure tanks.

This compressor is manufactured by the Baird & Henselwood Machine Company, 15-23 Raynor Street, Detroit, Mich., makers of the Yale marine engines and air compressors, as well as a line of chime whistles, air tanks and safety valves of improved design.

A Modernized Installation Breed & De Blois, of 1876 Broadway, New York City, are installing two of their 25-35-horsepower, four-cylinder modernized four-cycle engines, in the 61-foot cruising motor yacht Deliah. These engines, which produce the horsepower indicated above at from 365 to 600 revolutions per minute, in combination with a pair of special propellers designed to fit both hull and engine, are expected to give the boat increased speed.


Delian, a power cruiser, 61 feet over all and 10 feet beam, in which a Modernized Engine of 25-35 hp. is being installed.

A Make-and-Break System of Ignition Practically the only systems of ignition in use to-day are the jump-spark and the make-and-break systems. The jump-spark has been highly successful for certain classes of work, but its uses are limited; whereas the make-and-break may be used for all classes of work.

In installing a motor where it will be subjected to moisture or dampness in any way, the make-and-break, by reason of its low-tension current, is admirably adapted to the purpose. The hot fat spark and the self-cleaning features of this system also recommend its use to the adoption of the cheaper grades of fuel.

In the design of the Ferro make-and-break system, mechanical complication has been avoided, and all working parts are well proportioned. By removing two nuts the ignition block may be taken out for examination, and, if necessary, it may be cleaned very handily. The Ferro make-and-break ignition attachment consists of the timer, Fig. 1; trip rod, Fig. 2, and ignitor block, Fig. 3.

The ignitor block is a bronze casting, containing two sparking points or electrodes, *A* and *B*. This block is accurately machined and ground in place in the cylinder head. *B* is the stationary point, and *A* is the movable point. The point *B* is insulated from the ignitor block, to which the ignitor arm and spring are attached. This movable electrode works freely in the ignitor block, and is held away from the electrode *B* by means of the spiral spring.

When the system is in action the trip rod *T* is driven back and forth by the timer, and carries the trip arms *C* and *D* along with it. The trip arm *C* comes into contact with the ignitor arm *E*, and brings the electrodes *A* and *B* together, which establishes the flow of current between them, and at the same time places a tension on the spring. Then the trip arm releases the ignitor arm, and the spring snaps the points apart very suddenly, and this rapid separation causes a spark.

The Ferro Company make this attachment for their one and two-cylinder motors.

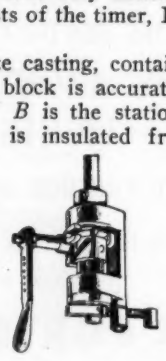


Fig. 1.—Timer.

Fig. 2.—Trip rod.

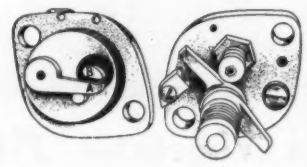


Fig. 3.—Ignitor block.

Component parts of the Ferro make-and-break system.

American Gears to Steer Foreign Yachts The recognition which the superiority of Edson Steering Gears has attained is not by any means confined to the United States. Many of the finest yachts owned abroad number among their fittings the products of the Edson Manufacturing company, of Boston, Mass. As a recent illustration of this, Messrs. Buchanan & Stevenson, of Leith, have just supplied Edson steering gears to Earl De La Warr's new yacht, Lady Hilda; Count Knuth's Vesta, Mr. W. I. Carr's new yacht Celia, and Mr. C. E. Parke's new yacht Owl.

A Removal Notice from New England The Mianus Motor Works, Mianus, Conn., manufacturers of the Mianus Marine Gasolene Motors, announce the removal of their Providence branch from 139 Richmond Street to 142-144 Dorrance Street, Providence, R. I. This change was necessitated owing to their former quarters being inadequate to take care of their rapidly-growing business. A full line of motors and parts will be carried in stock.

The Yacht's Host Hospitality and yachting are as inseparable as the sea and its salt atmosphere. A true yachtsman's pride does not end in the trimness of his ship above deck. Her appointments below are of as much concern to him.

As a royal dispenser of hospitality the careful yacht owner recognizes the fact that his china, glass and silver table services are among the most important items in his craft's equipment, whether she be sail, steam, motor or houseboat. To fittingly represent him they should bear his monogram, club insignia, private signal or colors. And they should be of such design and quality as to be perfectly adapted to his individual requirements. In looking about for the best that is to be had in china, glass and silver services, the majority of yachtsmen have learned that there is one house which has specialized for many years in outfitting yachts with furnishings of this kind. That firm is Higgins & Seiter, of West Twenty-first and Twenty-second Streets, near Sixth Avenue, New York, one of the largest retailers of fine china and cut-glass in the world. They have equipped hundreds of yachts, among them many of the best-known boats afloat. Such is the prestige which comes from specializing and excelling in one branch of their art, that last season alone nearly two hundred yachts—many of them ocean-going craft—were outfitted with table services from this house.

This patronage has not come to Higgins & Seiter without good reason. In the first place, the yacht department is under the direct superintendence of a member of the firm. Upon each order is brought to bear every facility of one of the best-equipped decorating plants in America. Then, again, the immense stocks of Higgins & Seiter afford yachtsmen a selection which is without equal elsewhere. That this service may meet the most exacting demands that can be made upon it, the firm has adopted methods which insure its efficiency in every detail, and provide a distinctly individual, and very often personally characteristic, design for each purchaser. Where the owner has a definite idea of what is

(Continued on page 542.)

Does this Outfit look good to you?

It works just as well as it looks.

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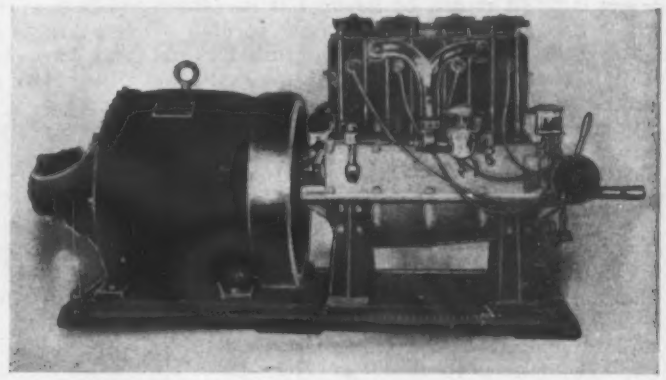

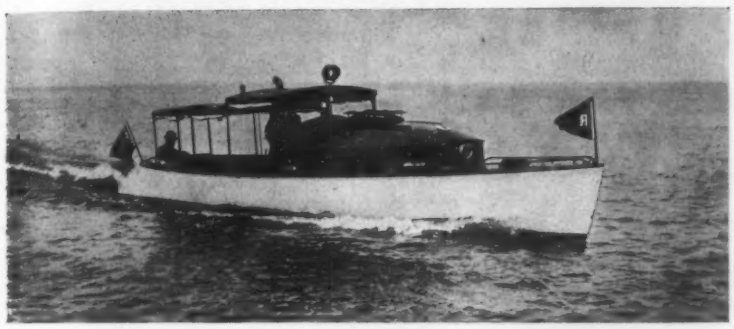

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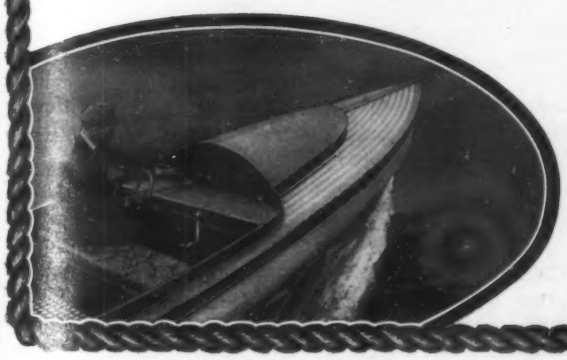

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Driftwood

Forecast of the June Races

THE first month of Summer is hard upon us at last with the formal opening of the yachting season, and with the first week comes the start of the first long distance race—the annual Bermuda contests for windjammers and power boats. Both of these events start the same day this year, and Gravesend Bay should be full of boats and enthusiasm on June 5.

The sailing race, for some reason, has not filled as well as on some other years, and at this writing but six boats appear as probable starters. These are the schooners Margaret, 93 feet over all, George S. Runk; Crusader, 98 feet over all, Edw. Palmer; Shamrock, 84 feet, Frederic Thompson; Restless, 40 feet, Dr. Lelam Sharp; Amorita, 99 feet, Dr. W. L. Baum, of Chicago, and Venona, 65 feet, E. G. Bliss.

The Snug, a little 30-foot over-all ketch, built by Huntington, this year may start, though it looks now as if business reasons will keep her owner and designer from going. The preponderance of small boats, which has been seen in other years, is missing this year. The small boats heretofore have always furnished the best of racing, and there was a certain gameness about the hard, trying trip to Bermuda in a boat less than 50 feet in length that appealed to the general public.

The Atlantic Yacht Club is handling the sailing affair, and the start will be made off the clubhouse in Gravesend Bay, and the finish will be off St. David's Head, Bermuda, a distance of some 670 miles. This year there will be four classes instead of two if there are enough entries to warrant. The largest class will be schooners over 90 feet over-all length. The second class is for yachts between 70 and 90 feet over all, and the smallest class will include those under 50 feet over all.

In the larger class, Amorita, if she starts and the going is to her liking, looks to have the best chance, though in an ocean race of this length conditions play such a large part that it may be anybody's race.

For the power boat race there are the following entries: Vice-Commodore Houck's new 60-foot cruiser, of New Rochelle Yacht Club; Nereides, Francis C. Rogers; Ilys, J. G. N. Whitaker, of Philadelphia, and a 60-foot boat built by Nilson for Commodore C. M. Slagel.

This race is for the James Gordon Bennett Challenge Cup, and is for a trophy presented for annual competition, and must be won three times by the same owner before being awarded permanently. The first race for this trophy was held last year, and the cup at present is held by Ailsa Craig, of the Motor Boat Club of America, which boat may also be a starter this year. The course is from the station of the Motor Boat Club of America, New York Harbor, to a stakeboat at Bermuda, placed by the Royal Bermuda Yacht Club; and the start will be made Saturday, June 5. From the number of boats entered, a much more satisfactory and interesting race than occurred last year is assured.

The Bermuda boats will hardly be back before the annual Block Island Race of the New York Athletic Club is on. This is always one of the most popular races of the East, there being thirty-one starters in the sailing race last year. The start of this race will be 11 A. M., June 19, and the course is from Whortleberry Island to the West Harbor at Block Island, a distance of 100 nautical miles. The event is open to boats of less than 32 feet waterline, and, from the entries that have been received already, it looks as though last year's large list of starters will be exceeded.

The following boats are already entered, and among the "Blockers" entries always mean actual starters:

Intrepid, G. P. Granbery; Tomboy II, D. Y. Pendas; Grace II, J. F. Lambden; Kenosha I, W. R. Berth; Marco Polo, W. E. Newman; Saladin, R. W. Rathborne; Mopsa, F. C. & W. S. Sullivan; Altair, H. L. Stone; Tillicum II, C. S. King; Fearless, B. R. Stoddard; Red Wing, M. B. Pendas; Snug, D. Bacon; Notos, G. K. Benson; Bole, J. E. Ridder; Adventuress, J. S. Dickerson; Walla Walla, E. H. Tucker; Busy Bee, R. L. Cuthbert; Bobtail, Richard Monks; Victory, H. A. Jackson, Jr.; Althea, J. W. Alker; Newasi, Jones & Robinson; Io, C. A. Marshland; Surprize II, M. S. Katenhorn; Sagola, W. H. Lunderman; Kenosha II, C. W. Voltz; Laddie Boy, C. M. Cary; and Nutmeg, A. C. Jones, a Boston sloop, that nearly always comes on to take part in this race.

Photo by W. B. Jackson.
Victory, formerly Brigand, Harry Jackson, Jr.'s, entry in the Block Island Race.

At 5 o'clock on the afternoon of the same day the second annual Power Boat Race to Block Island for the Thomas Fleming Day Cup, run under the auspices of the New York Athletic Club, will be started. This is for boats of not less than 25 or more than 40 feet in length over all, and should attract as many or more entries than the Marblehead contest later on in the season. The following boats have already entered:

Janet, J. G. Campbell, Huntington Yacht Club; Cho Cho, Archibald Mac Laren, Huntington Yacht Club; a syndicate boat (not named), of Nassau Yacht Club; and Picaroon, T. B. Baylies, New Bedford. Entries for both of these races may be made with H. A. Jackson, J., 409 Pearl St., New York city.

One week later, on June 26, the annual long-distance race of the Manhasset Bay Yacht Club, from Port Washington to Cornfield Lightvessel and return, a distance of 142 nautical miles, will be started. This is for a cup presented by Mr. Howard Gould, with second, third and fourth prizes offered by Commodore Hoyt, and should attract the best boats of 38 feet rating and under on Long Island Sound.

On the Pacific Coast the last week of June will see the opening of the big regatta held in connection with the Alaska-Yukon-Pacific Exposition.

The regatta opens with the long-distance power cruising race from Vancouver, B. C., to Seattle, over a course measuring approximately 225 miles. The entries for this event will be divided into five classes of from 30 to over 60 feet, which will conform to the general restrictions used in the Marblehead event. A consolation class for those boats ineligible to this rule will be sent over the course. Further details of this race may be obtained by writing to F. M. Foulser, secretary of the P. I. P. B. A., Seattle.

A racing calendar of the other June events will be found in another column.

With the Designers and Builders

At the yard of E. James Tull, Pocomoke City, Md., there is building an auxiliary schooner for Joseph T. Bailey, for cruising on the Chesapeake Bay and other waters. The dimensions of this craft are: Length over all, 64 feet 3 inches; length on load waterline, 56 feet 3 inches; beam, 16 feet 9 inches, with a draft of 3 feet when the centerboard is up. Her rig is small, and intended for moderate and heavy weather.

A motor boat whose speed, so its builder believes, will exceed that of the Dixie II, winner of the Harmsworth Cup in the British International Trophy Race last fall, has just been built by John L. Fagan, of Germantown. It is believed that this boat will show a speed of 34 miles an hour. She is 39.9 feet in length, with a beam of 4.3 feet. The frame is of white oak covered with a double skin of white cedar, having oiled silk between. The construction is on the inverted-wedge principle—that is, the craft is deeper forward than aft.

Bracing and stiffening the boat inside is a system of steel bridge trussing. The vessel steers with double rudders, and carries an eight-cylinder Chadwick motor. The 8 by 7 cylinders develop 220 horsepower per thousand revolutions, driving a single screw.

Many small craft are being turned out at the works of the Electric Launch Company at Bayonne. Among these are an Elco-Peerless express for Nathan Straus, which will be used on the St. Lawrence River; one for E. E. Payne, of Wilkes-Barre, Pa., for use on Harvey's Lake, and one for D. C. Whitney, of Detroit, for use on the Detroit River.

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The law requires that every motor boat carry an **efficient** whistle. The Hopkins Power Whistle gives the greatest efficiency at the least cost. Your engine's power will not be affected by it in the slightest degree. The "Hopkins" is the only whistle with an automatic water-cooled valve. This valve is mechanically perfect—obviates the possibility of gas explosion in the air tank—and assures positive safety and reliability.

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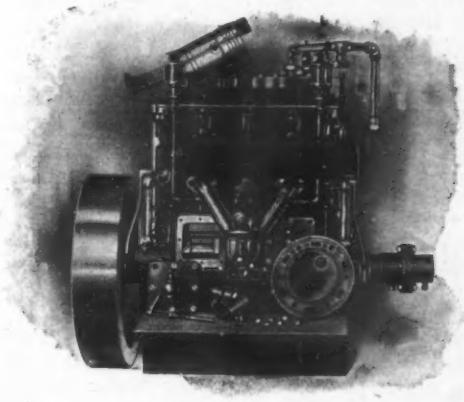

Two cylinders with split base, assembled on one piece bed plate. Perfect alignment of crank shaft bearings. Easy to get at. Interior of one cylinder open for inspection, absolutely nothing disturbed on the other. Send for catalog describing other features.

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The Motor Yacht Elkhorn, recently sold to Mr. Geo. A. Draper, of Hopedale, is being overhauled at Morse Dry Dock, under Messrs. Tams, Lemoine & Crane's supervision. The auxiliary steam yacht Aloha, owned by Commodore James, New York Yacht Club, is having a new feathering propeller from Messrs. Tams, Lemoine & Crane's designs. The 60-foot motor yacht building at Morris Heights, from Messrs. Tams, Lemoine & Crane's designs, will soon be launched. She is to be called Calypso, and will have a 30-horsepower, 20th Century motor.

Some Recent Transfers

The following yachts have recently changed hands through the agency of Hollis Burgess:

The 35-foot launch Falcon, by C. N. Burnell, of Boston, Mass., to Robert C. Wead, of Providence, R. I.

The handsome 40-foot cruising launch La Reine, by Wm. M. Ware, of Boston, to Mr. A. E. Studley, of Portland, Me.

The 21-foot sloop Clarice, by J. Fred. Harvey, of Boston, Mass., to E. P. Saltonstall, of Boston, Mass.

The gasolene launch Nokomis, by H. N. Ridgeway, of Boston, Mass., to W. J. K. Hilliard and D. J. Kelley, of Boston.

The 25-foot cruising launch Goblin, by Mrs. F. S. Salisbury, of New York, to Mr. E. H. Tarbell, of Boston, Mass.

The 21-foot knockabout Nydia, by A. A. Denico, of New York, to F. S. Eaton, of Boston, Mass.

The 30-foot cruising cutter Gavilan, by Lindsley Loring, of Boston, to A. F. Flint and R. W. Rose, of Clifton, Mass.

The 18-foot sloop Owl, by Edw. P. Hendricks, of Boston, Mass., to Louis Bacon, of Boston, Mass.

The cruising yawl Sassoon, by W. L. Barnard, of Boston, to Horace Mann, of Milton, Mass.

The 28-foot auxiliary yawl Sindbad, by Rev. Leighton Parks, of New York, to John C. Phillips of Boston.

The Herreshoff Buzzards Bay 30-footer Quakeress II, by Walter C. Lewis, of Boston, Mass., to Vice-Commodore Wm. L. Barnard, of Boston.

The 30-foot cabin gasolene launch Allen, by J. H. Allen, of Beechwood, Me., to C. N. Burnell, of Boston, Mass.

The 21-foot knockabout Scamper, by H. B. Seates, of Boston, to Frank B. Converse, of Boston.

The 40-foot sloop yacht Ameria, by C. W. Sherburne, of Boston, to Richard von Foregger, of New York.

The same agency has chartered the 32-foot cruising yawl Beatrice, by George H. Hill, of Boston, to Robert E. Stone and B. C. Tower, of Boston.

The following yachts have recently changed hands through Messrs. Tams, Lemoine & Crane:

The 90-foot, fast-cruising motor yacht Grayling, by Mr. C. K. G. Billings, to Mr. John Sherman Hoyt.

The 70-foot motor yacht There-She-Goes, by Mr. Archer M. Huntington, who has renamed her Fledermaus.

The 104-foot motor yacht Elkhorn, by Mr. A. O. Turner, to Mr. George A. Draper, of Boston.

The auxiliary schooner yacht Marjorie by Mr. F. L. St. John to Mr. T. L. Chadbourne, Jr., who has renamed her Robin.

The sloop yacht Electra, by Mr. Horace Havemeyer to Mr. E. C. Dickerson, who has renamed her Adventuress.

Hunting cabin launch Reliable, by Mr. Robert W. Emmons, 2d, to Mr. Henry T. Sloane.

The 220-foot English steam yacht Medusa has been chartered by Mr. Francis Farquhar to Mr. S. R. Bertron.

B. B. Crowninshield, yacht broker, reports the sale of the following: 32-foot waterline sloop Lady Mary, owned by Nelson W. Aldrich, Providence, R. I., to Demarest Lloyd, of Cambridge, who will use her at Peach's Point, Marblehead, Mass. The Lady Mary was designed by Crowninshield and built by Lawley in 1900. The 21-foot raceabout Gadfly, owned by E. H. Trumbull, sold to F. E. Tupper, of Quincy, Mass.; the 21-foot raceabout Friendship VII, ex Jack Rabbit, owned by H. L. Friend, sold to Paul Burdett, of Boston, who will use the boat at Marion, Mass.; the 18-foot knockabout Hugi, owned by Alfred Chase, of Lynn, Mass., to Porter Feary and T. R. Goodwin, of Providence, R. I. The Hugi has started around the Cape and will take part in all the regattas of the Narragansett Bay Yachting Association that have adopted the 18-foot class restrictions. B. B. Crowninshield is having built by Graves, at Marblehead, for his own use a semi-speed launch, 32 feet on deck, in which will be installed a 25-horsepower telemotor, which is expected to drive the boat 15 miles an hour. The 35-foot motor boat Ixion, owned by J. K. Lanning, sold to Cooper Howell of Philadelphia; the 25-foot yawl designed by B. B. Crowninshield, owned by Herbert M. Fryer Estate, sold to M. S. Kattenhorn, of New York; the 30-foot motor boat Emily, owned by David P. Page, sold to Dr. Robert T. Moffatt, of Boston; the 24-foot keel yawl Minerva, owned by Arthur E. Green, sold to Arthur G. Hoel, of Boston; the 25-foot sloop Mimosa I, owned by T. W. Rayborg, of New York city, sold to Charles A. Cooley, of Boston; the 40-foot motor boat Alsoran, owned by Richard Hutchison, sold to Henry Gilsey, of New York city; the 25-foot keel sloop Dixie, owned by C. O. Black, sold to Herbert W. Windeler, of Boston; the 46-foot waterline keel schooner designed by B. B. Crowninshield, for Alexander M. Forbes, Esq., and being built by Rice Brothers, East Boothbay, Me., is almost completed.

Narragansett Bay Yacht Racing

The race for wholesome catboats, which is to be held on Barnegat Bay this summer between boats from the different bays for the inter-sectional championship, has awakened new life in the half-dead catboat men, and this section will send a boat, in fact two if they are permitted.

In addition to this and other events, there will be two races from Pawtuxet around Brenton's Reef, distance about 40 miles, for sloops of all classes; two races over the same course, starting from Bristol, about 35 miles; the Day 100-mile ocean event, and a race from New Bedford to Gravesend Bay, so that local boats will be busy enough. If there are any outclassed racers looking for trouble, they will find it on Narragansett Bay. By outclassed is meant under the uniform rule and not in point of speed, as they will have to go some to win from the local fleet, which at present consists of the pick of the country in their respective classes.

In the big sloop class there are building at Herreshoff's three boats to fit the local rule. One of these boats is for Jim Whital, and the other for Heck Wetherill, both of Jamestown, while the third is for a Larchmont man, and I cannot discover if she is to be raced here or not. It is an almost unheard-of thing for Herreshoff to build for a local class, and it will be of marked interest to see if he will be able to go back to the waterline and sail area rule, with the restriction on overhangs, and turn out as fast a boat as the Massachusetts 22-footers.

News of the Yacht Clubs

Ocean Race of the Brooklyn Y. C.

The following are the entries for the Brooklyn Yacht Club Cape May Race for the Richard Croker Cup, which starts Saturday, July 3:

Tammany (schooner), Commodore W. C. Towen; Eclipse (schooner), L. J. Callanan; Vigil (schooner), John Lewis; Uncas (schooner), George W. Titcomb; Gardenia (sloop), Leo Herzog; Sakana (yawl), Haviland Bros. It is also expected that the Dorello and Mimosa III will enter in the near future. The race is open to sailing yachts not measuring more than 100 feet, extreme length, any rig, belonging to any organized yacht club in the world.

Illinois Valley Yacht Club

The I. V. Y. C., organized two years ago, has now an enthusiastic membership of 442. They have arranged for a big race meet in Peoria waters, August 17 and 18, and offer for the 40-foot speed class $500 in cash and a sterling silver cup, valued at $250. Independence of St. Louis will undoubtedly be an entry in this event. For the 32-foot class, $100 in cash and a sterling silver cup, value $250, is offered, and for the 20-foot class $100 cash and a sterling silver cup, valued at $250. They have the support of the Mississippi Valley Power Boat Association and the Western Power Boat Association, and are assured of a large number of entries from these associations. Inasmuch as the prizes are valuable they feel that they should have some entries from the East, and would like to interest builders of motor boat machinery and owners in this event.

In classification they follow the classes laid down by the American Power Boat Association, and in addition will give prizes to a cruising class and 26-foot speed class.

Island Heights Yacht Club

The Island Heights Club is one of the first clubs on the New Jersey coast to have a permanent home and take up racing and cruising in earnest. The house is a large building over the water, with many accommodations and plenty of dock room for the smaller yachts.

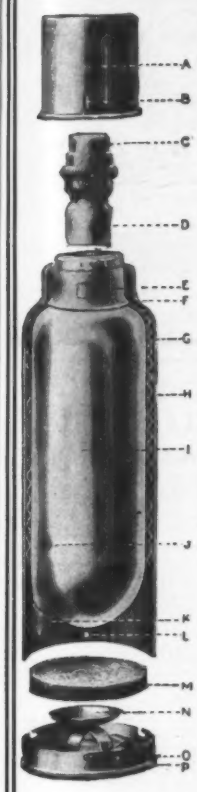
The clubs along the New Jersey coast are vieing with each other to arrange the most attractive and successful yachting event for the coming season. It looks as though Island Heights had drawn the prize—the Interbay Catboat Race.

The conditions are that each bay is to be represented by two boats, chosen by any method which the local association sees fit.

Type of boat must be a legitimate cat, having one centerboard, one rudder and carry one sail only.

Power Boat Race to Albany and Return

One of the attractive events scheduled for this season is the First Annual Long-Distance Race of the New York Motor Boat Club, from New York to Albany and return, which will start from the clubhouse, 147th Street and Hudson River, at 7 P. M., July 3. This race is open to all motorboats under 40 feet over all and having a waterline beam of not less than one-fifth of the water-line length and enrolled in any recognized club. The course is from the New York Motor Boat Clubhouse, foot West 147th Street, to stake boat off the Albany Yacht Clubhouse, Albany, N. Y., and return, a distance of 270 statute miles. The New York Motor Boat Club Cup will be presented to the boat making the best corrected time.



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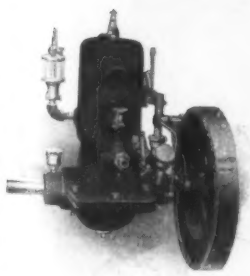

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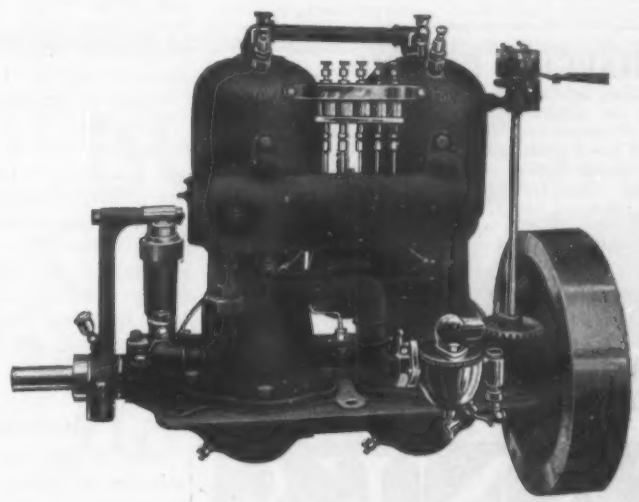

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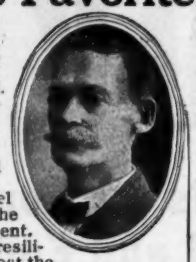

Here is my own Casting Rod. I am having it made for all fishermen who want it, at my factory for the first time this season. It has my own pet ideas. That's why you can make a longer and more accurate cast with it.

There's my patent locking reel band which locks and releases the reel by a slight hand movement. This is a two-piece rod with the resilience of a one-piece rod and almost the carrying convenience of a three-piece. I use only select imported bamboo and only the butt cuts (first 6 feet). These are air dried for months.

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Lakewood Y. C. Races

The regatta committee of the Lakewood Yacht Club, of which A. J. Prentice is chairman, has announced the program for the season, and Cleveland yachtsmen expect a busy summer. Beginning on June 12 there will be a race every Saturday afternoon but one, until Aug. 14, when those who take part in the Inter-Lake Yachting Association Regatta at Toledo, August 23, will have to prepare for the long lake trip. After August 14 there will be no races of the club series scheduled and the open regattas, September 4-11, will officially close the season.

The Commodore Gardner Cup will be raced for on July 5 on a free-for-all basis, and will be for the boat making the best corrected time. The G. H. Gardner Cup for 18-footers goes to the winner of the season's series. The Wakefield bronze trophy will be raced for off Rocky River on one of the scheduled dates instead of at Vermillion on Labor Day.

Then on Wednesday, September 8, will begin the match race between the Lakewood and Massachusetts Bay champions for a cup emblematic of the American championship of the 18-foot knockabout class. Some fast boats will take part in the sailing races of the Lakewood Yacht Club this season. Hayseed, the Small Bros. craft, owned by Walter C. Baker, heads the list. She won the Y. R. A. championship of Massachusetts Bay in 1904 and 1905, and the L. Y. C. championship in 1908.

5,000-Mile Motor Boat Trip

Ralph M. Pearson, a member of the Jackson Park Yacht Club, will undertake a cruise of 5,000 miles on his motor boat Catherine M. He left Chicago from the Wells Street Bridge May 3, and will cruise down the drainage canal and Mississippi River into the Gulf of Mexico, the prospective deep waterways route, up the Atlantic coast to the St. Lawrence River, and return to Chicago by the Great Lakes.

Catherine M. is a staunch little craft, 35 feet in length, with 8 feet beam. It is propelled by a 15 horsepower Holliday engine, which will drive her through the water at an 8-knot an hour clip. The boat is provided with a cabin.

Catherine M. was built by Mr. Pearson two years ago, and last year its owner took many cruises on Lake Michigan. He has been on the lake in many heavy blows, and is more than satisfied that she is one of the best sea boats in Chicago.

Morrisania Yacht Club

The Morrisania Yacht Club went into commission on Saturday, May 15, at 4 P. M., when Commodore J. H. Curtis fired the signal to raise the club colors.

This club has been in existence since 1890, originally starting at Cassanova with 35 members. The club membership increased to such a large extent that new quarters had to be procured, and, after looking over several available sites, South Brother Island was found to be the most desirable. This island is occupied exclusively by the Morrisania Yacht Club and can be reached by club launches, which leave foot of 138th Street every hour.

The membership at present consists of 162 members, and bids fair to reach the 200-mark this season.

The officers for 1909 are: Commodore, J. H. Curtis; vice-commodore, J. Kohm; treasurer, A. S. Kemp; financial secretary, S. W. Gurnee; recording secretary, H. J. Barto; measurer, C. Reutemann; fleet surgeon, J. Schroeder, M.D.; sergeant-at-arms, J. Hagen.

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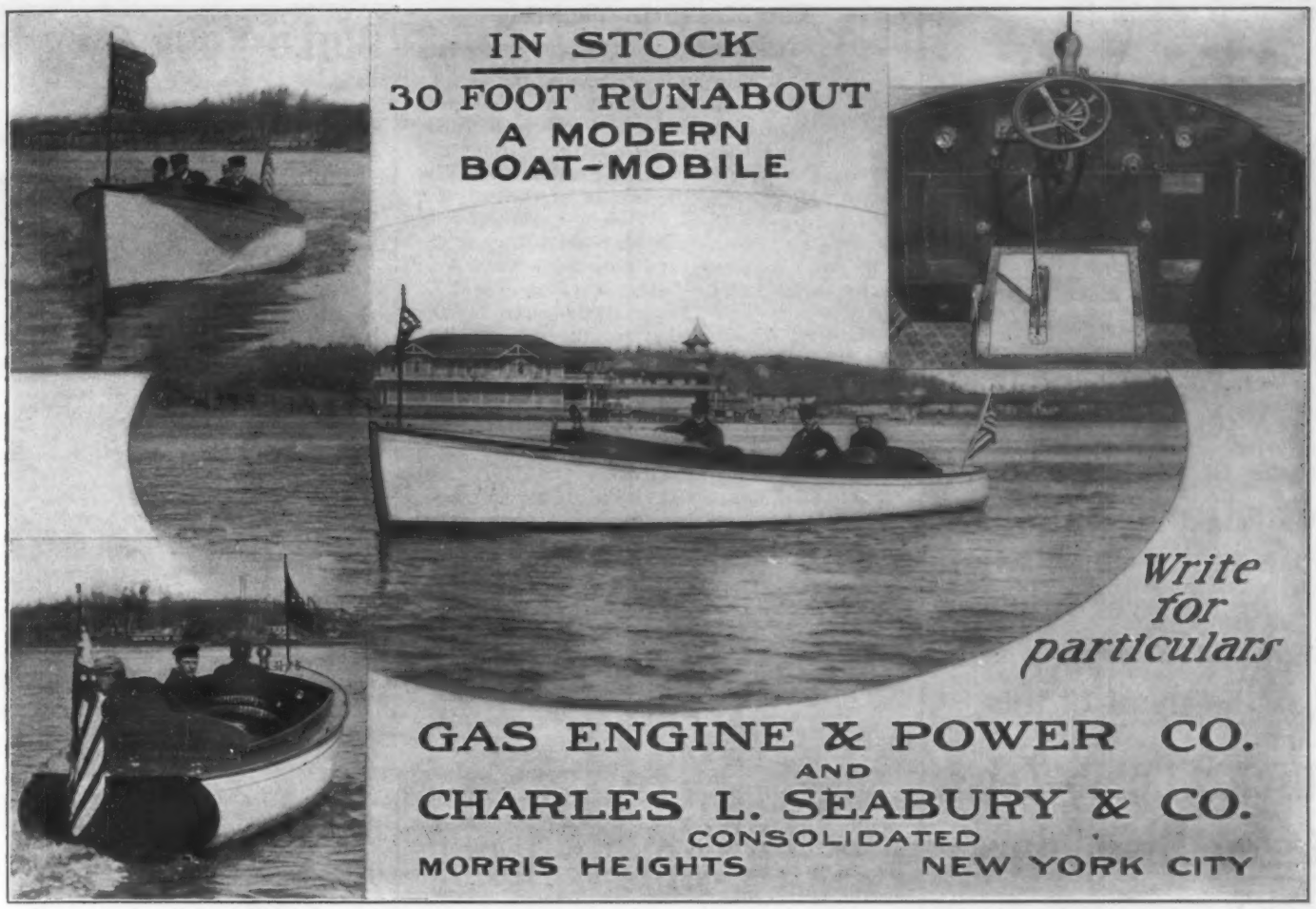

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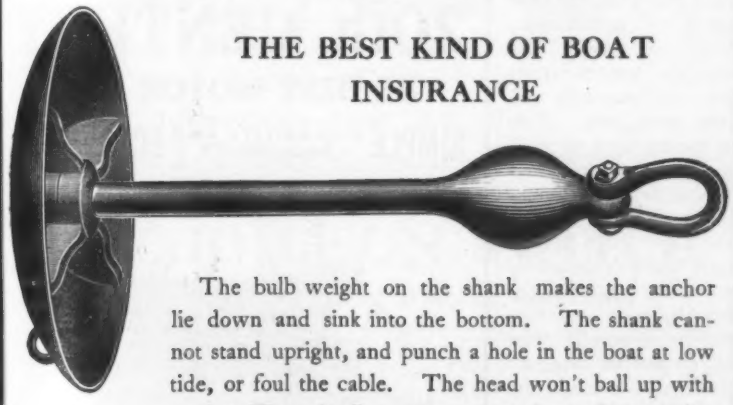

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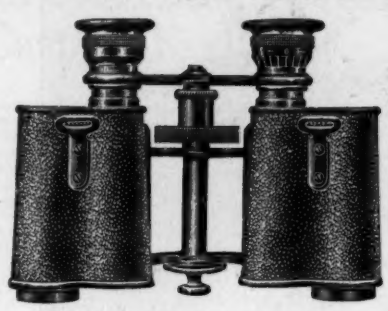

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BOSTON

The Month in Yachting

(Continued from page 490.)

racing of power craft definitely and finally.

South Jersey yachtsmen, who were awaiting with trepidation the advent of the crack Rhode Island sloop Little Haste on Barnegat Bay, now have no reason to fear for their laurels. The fleet single sticker lies at the bottom of the Atlantic, off Long Branch, N. J. While in tow from New England waters, early in May, she ran upon the poles of a fishpound and punched a great hole in her bow, sinking before anything could be done to save her. Little Haste raced on the Sound last year and, but for the fact that she was blown ashore on Block Island in the course of a race, had a successful season. She attained her greatest fame as a racer on Narragansett Bay two years ago, where she was practically unbeatable in the twenty-two-foot class. Such swift sloops as Nutmeg, Peri II, Medric and other swift boats fell victim to her prowess, and that she would have continued her winning career had she lived to reach Barnegat Bay is undoubted. We have too few sloops of the calibre of Little Haste in Eastern waters to afford the loss of such a boat. It is said that efforts will be made to raise her, and, if they are successful, she will still have a chance to prove herself on Barnegat Bay.

The Catboat

(Continued from page 493.)

afternoon sailing. The Riverside Yacht Club has another class built from designs by HenryJ. Gielow. There are a few small craft of this type owned by yachtsmen on the Sound who race them in the open regattas, but now it is quite a rare thing to see half a dozen catboats in a race.

What killed the catboat was the way designers tried to beat the rules of measurement with them. They have tried to beat the rules of measurement with every type of boat they have turned out, but with the cat their work was fatal. They tried to turn out racing freaks. Overhangs were put on the boats—long overhangs forward and aft—so that when they floated on an even keel they would measure 15, 18 or 20 feet, according to the class they were intended for, but as soon as they were heeled they would increase this length to 25 or 30 feet or more, and on that extra length they were able to carry big spreads of canvas, and, with their fine, light hulls, to sail very fast. They were fitted with balance rudders, and the old-fashioned boats with the blunt, straight stem and the rudder hung on the stern was gone. This type is good for nothing but racing, and as men who raced wanted something better balanced and easily handled, the racing catboat fell in favor.

Down on Barnegat Bay they still cling to this type of racing boat, and have races each season for the Sewell Cup. Since 1900 boats designed by Charles D. Mower have won seven out of eight times, and these are probably the most extreme type of racing craft that has been sailed. The Empress was the first, with a 30-foot over-all length on an 18 feet waterline. Later came the Manhasset, and last year the I. H. Y. C., owned by the Island Heights Yacht Club. This boat is 36 feet over all and 18 feet on the water. She is fitted with two bilge boards and two rudders. These boards are used in going to windward, according to the tack the yacht is on, and when heeled over one rudder or the other is completely out of water. She is wonderfully fast, probably the fastest boat of her size ever built, but she is only a racing machine, and if the Atlantic Coast Conference had not changed the measurement rules and adopted the present rule it would have been only a matter of time when most racing craft would have been built in this way.

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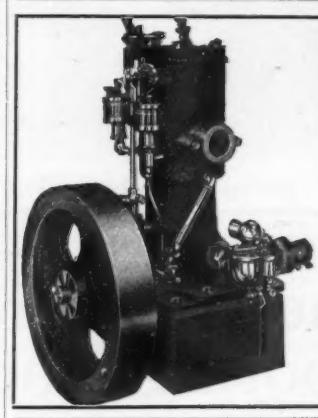

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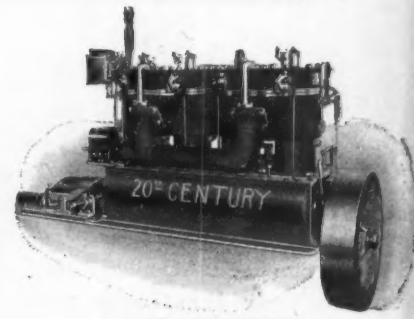

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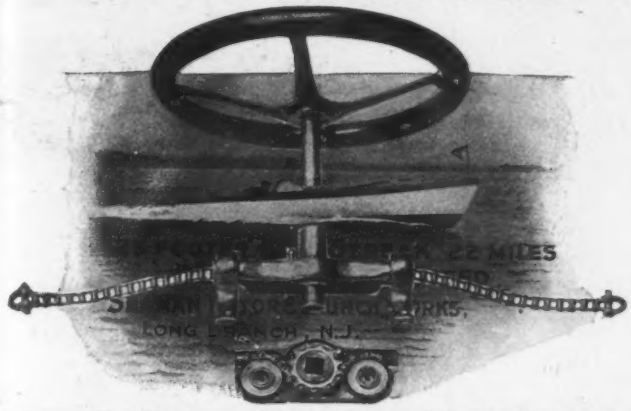

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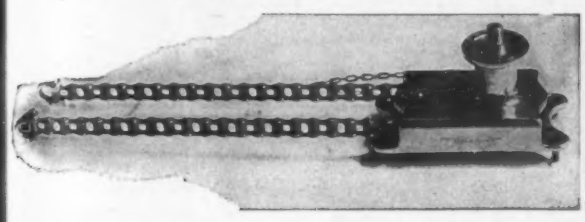

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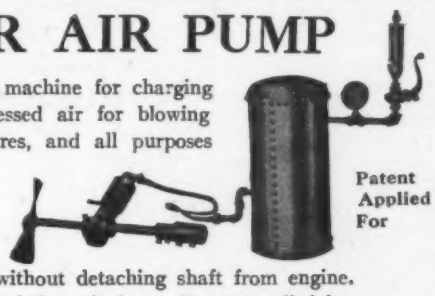

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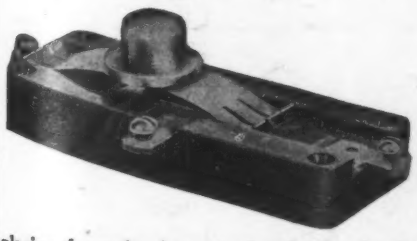

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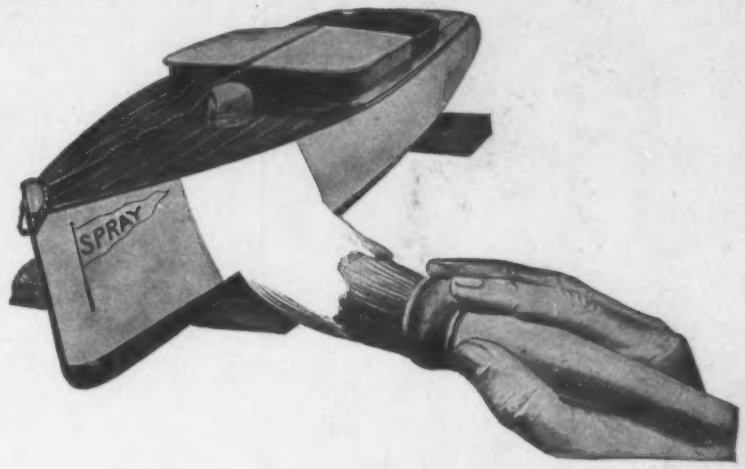

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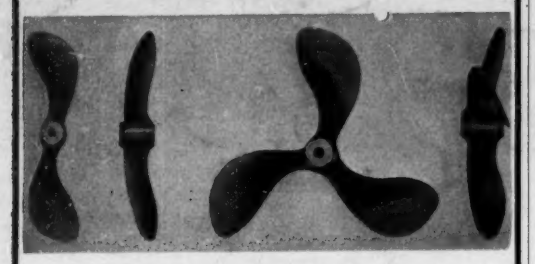

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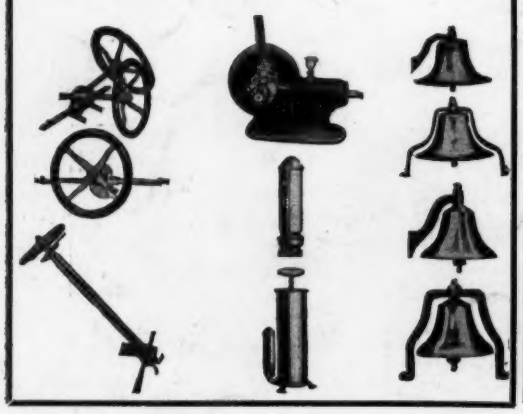

Calendar of Racing for June

5 Seawanhaka Corinthian Y. C., 15-footers.
5. Manhasset Bay Y. C. annual.
5. Crescent A. C. open.
5. Rhode Island Y. C., Brenton Reef cup race.
5. Fall River Y. C., motor boats.
5. Atlantic Y. C., start Bermuda race.
5. Motor Boat Club, start Bermuda race.
5. Boston Y. C., City Point.
5. Detroit Motor Boat Club, race.
12. Seawanhaka Corinthian Y. C., 15-footers.
12. New Rochelle, Y. C., annual.
12. Manhasset Bay Y. C., one-design.
12. Corinthian Y. C., Philadelphia.
12. Bensonhurst Y. C., open.
12. Edgewood Y. C., second race, Flint cup.
12. Fall River Y. C., rear-com. cup and motor boats.
12. Corinthian Y. C., Marblehead, club.
12. American Y. C., Newburyport, club.
12. Chicago Y. C., Michigan City race.
12 Lakewood Y. C., class championship, Wakefield Trophy.
12 Royal Vancouver Y. C., regatta, English Bay course.
13. Manhasset Bay Y. C., one-design.
17. Duxbury Y. C.
17. New York Y. C., spring cups, Glen Cove.
17. Jubilee Y. C., motor boats, Vittum cup.
17. Boston Y. C., open, Hull.
19. Seawanhaka Corinthian Y. C., 15-footers.
19. Duxbury Y. C.
19. Larchmont Y. C., spring.
19 Manhasset Bay Y. C., one-design.
19. New York Canoe Club.
19. Rhode Island, Y. C., open.
19. Fall River Y. C., motor boats.
19. Corinthian Y. C., Marblehead, club and Isle of Shoals race.
19. New York A. C., Block Island races, sail and power.
19. Detroit Motor Boat Club, squadron sail.
19. Royal Vancouver Y. C., Beaver Cup race.
20. Manhasset Bay Y. C., one-design.
25. Seawanhaka Corinthian Y. C., special.
26. Duxbury Y. C.
26 Seawanhaka Corinthian Y. C., annual.
26. Manhasset Bay Y. C., Cornfield L. V. race.
26. Atlantic Y. C.
26. Corinthian Y. C., Philadelphia.
26. Fall River Y. C., power boats.
26. Eastern Y. C., special, open.
26. Mosquito Fleet Y. C., open.
26. American Y. C., Newburyport, club.
26. Detroit Motor Boat Club, race.
26. 27. California Y. C., cruising race to Petaluna and return.
26. Bristol Y. C., Spring Regatta.
26. Lakewood Y. C., class championship.

Regarding Amorita and Quissetta

In our May issue, in The Month in Yachting, we spoke of Amorita and Quissetta and said, among other things, speaking in a general way, that "W. Gould Brokaw owned Amorita, and every time he defeated Quissetta, which was every other day or so, he gave a dinner." In fairness to that able schooner, Quissetta, it is only right to say that this state of affairs had reference to the earlier careers of the two boats.

Under her second owner, if I remember rightly, Quissetta was altered considerably; had her rail cut down, and other things were done to lighten her, and in this state she was able to put it over Amorita, especially under certain conditions. Throughout, the racing between those two boats was keen and hard fought. These boats were built in 1895 and '96, and in 1901 Murial and the first Elmina came along. Whenever these older boats and the new ones came together Quissetta always showed up well, and usually beat Murial, and oftentimes Elmina.

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